Managing Risks at Early-Stage Investment

An Information Asymmetry and Signaling Perspective

By

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Abstract

Title: Managing Risks at Early-Stage Investment – An Information Asymmetry and Signaling Perspective

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Venture Capital (VC) funding for entrepreneurs has traditionally been examined independently without considering risk differentials or idiosyncratic information gaps at various funding stages. As a result, these studies carry either a survival bias (only successful ventures), confirmation bias (interpreting information partial to decisions), or an assumption of information homogeneity across the funding stages. Without tangible and performance-related information at the early funding stage (seed), VCs rely on indicators or signals that create unimpeachable logic for investment. The paper explores VCs’ criteria to manage investment risks through an information asymmetry and signaling perspective and leveraging phenomenological research. The study was conducted with 14 India-based VCs investing in early-stages of an entrepreneurial venture.

The research shows that early-stage VCs do not rely on one signal or approach but a systematic and linear approach to managing the risks associated with early-stage investments. Without any real data points, the early-stage investment is driven by what the VCs know (markets, third-party validated deals), what they intuit (passion for the entrepreneurial process, vision, and execution abilities), and what they can control (agency constructs and coachability) as their
investment thesis. The study opens doors for numerous research on risk mitigation and information asymmetry strategies, especially as it relates to signals for early-stage investments.

*Keywords:* Venture Capital, Early-Stage Investment, Signals, Entrepreneur, Phenomenology, Information Asymmetry
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Chapter 1 - Introduction

1.1 Background

The field of entrepreneurship has been studied for decades, with Schumpeter (1934) emphasizing the consequence of entrepreneurial innovation in supporting economic growth and societal development. Schumpeter describes entrepreneurs as innovators who disrupt the present to create new. Other scholars like Christensen et al. (2001) and Rogers (1995) underscore the facilitative nature of these entrepreneurial startups in driving market and organizational transformation. Gunter (2012) says entrepreneurs are “individuals who in an uncertain environment recognize opportunities that most fail to see and create ventures to profit by exploiting these opportunities” (p.387).

The entrepreneur funding market is characterized by three key players – the outside investors who have the funds but don’t have the capacity or wherewithal to screen and manage potential investee companies, the Venture Capital (VC) firms who have the expertise and ability to identify and address potential investments and entrepreneurs who have the idea, opportunity, and knowledge, but lack financial strengths. The investors (typically called Limited Partners or LPs) will fund VCs (General partners or GPs) who create and manage a portfolio of invested companies (Ewens et al., 2013).

To understand the funding risk and reward opportunities, it is critical to understand that VC firms are not the ones taking financial risks but doing that on behalf of their Limited Partners (LPs), who invest money in funds used to finance
the entrepreneurs. The LPs could be individuals, university grants, public pension funds, corporates, wealth funds, and families. VCs are compensated with management fees for identifying funding opportunities, qualifying deals, and managing the investments, share of profits at the total or partial exit, and in some cases, shares of companies that go public (Gompers & Lerner 2001). VCs will manage a portfolio of companies, with expectations that these investments in startups will provide them significant opportunities to create a return on their investments. Jensen (1993) and Porter (1992), while examining engagement conditions that govern the relationships between the VCs and Limited Partners, have highlighted the incentive expectations and realization of such investment.

Over the last decade, identifying winners and providing wealth for investors has driven this industry. The strong equity market, regulations, and above-average valuation create the right environment for LPs and VCs to participate in the risks.

The entrepreneur funding market has seen a considerable jump in the last twenty years, with billions of dollars of risk capital being infused to support ideas, disrupt traditional models, and create new products (Denis, 2004). VC funding in 2021 surpassed all the records across the entire spectrum of funding stages. As of January 4, 2022, Crunchbase data highlights that VC funding in 2021 was up more than ten times from a decade ago (Teare, 2022). Coming out of the Covid-19 years, the global venture investments in 2021 grew 92% year-on-year, reaching $643 billion. The increase in funding underscores a significant shift in the startup funding environment post the global pandemic and an anemic rise in 2020 (Teare,
The growth was interesting because seed funding, generally considered riskier than late-stage funding, also grew significantly in 2021, raising $10 billion additional in 2021 for total funding of $29.4 billion (Source: Crunchbase data, 2022). According to National Venture Capital Association (NVCA), 42% of the deals in 2020 were seed capital infusions toward entrepreneur firms.

VCs have been a source of funding for numerous innovative companies like Amazon, Netflix, Alphabet, Airbnb, Uber, Starbucks and more recently, Stripe, Instacart, Robinhood, Coinbase and Airtable. These companies disrupted existing markets to create significant valuations and returns for their VCs (Harris et al., 2016). Researchers also believe that a disproportional amount of innovation, new product development and research, and development comes from VC companies. The ability to create wealth, disrupt markets, create high-end technology jobs and democratize market and consumer access has been recognized by various governments and is reflected in government policies promoting entrepreneurial ventures (Baldock & North, 2015; Arundale, 2018).

However, not all VC investments yield such valuation or create Unicorns (companies with a valuation of more than $1 billion). According to February 2022 data from CB Insights (CB Insights, 2022), more than 70% of VC-funded startups fail within the first 20 months. For the VC, this implies that the marginal costs of identifying, selecting, and controlling an entrepreneur firm tend to be high both in terms of opportunity and actual costs. Kaplan and Lerner (2010) estimated that less than one percent of VCs’ proposals are funded. However, the returns from investing in
the right entrepreneurial venture can be significant, and VC supported companies have outperformed public markets in the past (Harris et al., 2016).

Identifying the entrepreneur to fund, rationally selecting the ones to invest in, and eventually managing the investments are crucial processes for the VCs (Kaplan & Stromberg, 2001). Multiple perspectives exist on why VCs invest, and VC-backed entrepreneur firms do better than non-VC-backed firms. Zacharakis and Meyer (2000) believe that VCs identify high growth ventures and engage with entrepreneurs pursuing such high growth. Sapienza and Gupta (1994) attribute the success to monitoring by the VCs and active role in the board, while Kaplan and Stromberg (1999) link congruence of goals and management compensation as incentives to drive the entrepreneurs. Despite divergent views on how VCs manage or identify entrepreneur firms, most researchers agree that VC funding decision requires detailed analysis and due diligence of the variables like entrepreneur team, the technology and associated intellectual property, product markets, and viability of the business plan (Gorman & Sahlman, 1989; Fried & Hisrich, 1995). Only post due diligence will the VCs contribute early-stage and late-stage funding to entrepreneurs who they believe have the right mix of abilities to create above-average returns (Hoenig & Henkel, 2015; Gompers & Lerner, 2002). However, there is limited information available at early stage, forcing VCs to decide funding based on indicators that the VCs perceive will contribute towards the success of the entrepreneur firm.
The concept of information asymmetry and related signals have been leveraged across numerous disciplines and highlights the gap of information between the buyer and seller and, in this case, between VCs and the entrepreneurs. VCs leverage signals or lead indicators to mitigate the inherent risks of not having all the information to make sound decisions. These signals could relate to the entrepreneur themselves, or indicators that make the venture idea viable for investment. Researchers have debated on the investment construct based on betting on the horse (the idea) or the jockey (the entrepreneur), while others have included racetrack as an analogy for market tailwinds (Robertson, 2002; Richards, 2001). Additional research has tried to remove the venture idea from the entrepreneur to see where idea gains acceptance without the overarching bias of the entrepreneur (Davidson et al., 2021). Some of the past studies on investment decisions by VCs has emphasized the significance of the management team in terms of their pedigree, education, and personal characteristics as a decisions criterion (Gompers et al., 2020), while others have evaluated funding decisions based on the external characteristics of the business venture, including market, differentiation, expected returns and industry features (Fried and Hisrich, 1994; Gompers et al., 2020). However, more recent studies that have evaluated funding decisions emphasize the linearity in the decision, where investors may look at the characteristics of the venture idea and then assess the entrepreneur (Pollack et al, 2012; White and Dumay, 2017). In the scenario, where investors are evaluating the venture idea separately from the entrepreneur, the unit of analysis shifts from each as a separate
decision factor (Kelly, 2007). Mason et al. (2016) suggests that uneasiness about the entrepreneur is an overwhelming factor on why early-stage investors may decline to fund, even though the idea may make sense. Weintraub (2002), using the same racehorse analogy says that VCs will not fund a racehorse (venture idea) with a “four-hundred-pound gorilla” as a jockey. Other researchers have viewed risks associated with each and how funders either manage entrepreneur risks through agency construct and fund in stages where they perceive higher market risks (Das & Teng, 2001; Maxwell & Levesque, 2014).

The dynamics of entrepreneur funding continues to be an often-discussed area among numerous researchers and practitioners. Traditional funding models are getting displaced by newer funding models including crowdsourcing and angel investments to help entrepreneurs take their venture to market. Funding criteria that were based on quantifiable business case, financial projections, and markets are being replaced by business models based on ability to disrupt the existing. Drover et al. (2017) argues that research has moved and continues to move towards more subjective and iterative set of evaluation criteria that challenge the more rigid approaches. However, despite all the research and decisive funding frameworks, only a small percentage of entrepreneurs succeed. Gompers et al. (2006) say that only 30% of repeat entrepreneurs and 18% of first-time entrepreneurs succeed. With high failure rates, it begs question on what VCs fund and how they pick potential winners, considering the amount of information is limited at the earliest stage of an enterprise.
1.2 Funding Stages

The VC funds tend to specialize across various stages of the entrepreneur’s journey. As shown in Figure 1, seed capital funds (the first formal funding stage) invest in capital to fund the earliest financing stage. In contrast, late-stage funds will usually invest in growth and expansion or are set up for a firm's pre-initial public offering (IPO) stage (Gompers et al., 2020). Throughout the document, seed capital and early-stage capital are used interchangeably since both terms have been used by the VCs to mean the first formal stage of funding.

The pre-IPO stage funds provide bridge loans, liquidity, growth funds, and financing for acquisition (Rajan, 2010). Comparable classification of funding stages has also been highlighted by other researchers (Nortor & Tenenbaum, 1993; Harrison & Mason, 1996). Miller and Friesen (1984) call the early stage as “birth” and the late stage as “growth” of the company. Fried and Hisrich (1994) see these stages as stages of funding where entrepreneur firms will evaluate seed capital to support upfront investment and growth and then subsequent funding to catalyze the growth. Some specialized VCs will also invest for specific purposes, including funds for a management buyout (monetizing the management and replacing the team), leveraged buyout (funding to support merger and acquisition), and recapitalization.

Other informal channels like crowdfunding or funding by angel investors have also created an opportunity for entrepreneurs to leverage an alternative financing source. These typically precede seed funding by VCs (Allison et al., 2015).
1.2.1 Differentiating Between Early-Stage (Seed) VCs, Angel Investors and Private Equity (PE) Firms

Angel investors differ from seed funding VCs as the former are individual investors and, in most cases, high net worth individuals who play a similar role as VCs but do that with their own funds versus VCs who manage funds for their investees (Hsu et al. 2014). Some researchers consider angel investors as a prequel to VC funds (Ibrahim, 2008), and these angel investors are often ex-entrepreneur themselves (Wiltbank et al., 2009) who leverage their own experience and network to guide the entrepreneurs (Mason & Harrison, 2002). Secondly, compared to seed funding VCs, angel investors may also be from a similar background as an entrepreneur, hence lower disagreement of goals and lesser information gaps (Arthurs & Busenitz, 2003). The third key difference is that angel investors tend to be more vulnerable to entrepreneur risk versus early-stage VCs, who are more susceptible to market risk (Fiet, 1995). Finally, angel investors tend to invest in a select group of entrepreneur firms they can support, rather than an extensive portfolio that VCs tend to manage. Hence angel investors aim to keep the success of their individual investments, while VCs aim to evaluate the success of their portfolio (Amit, Brander, & Zott, 1998; Camp, 2002). As more angel investors convert to angel funds and subsequently manage other investors’ funds, the distinction between the angel investment fund and early-stage seed funding VCs recedes.
According to academic research, one of the key differences between private equity (PE) firms and early-stage VCs is their investment strategies. Cumming and Johan (2013) say that PE firms typically invest in established companies with a track record of performance, while VC firms invest in early-stage ventures with high growth potential. While both PE and early-stage VC firms aim to generate high returns, they differ in their approach to portfolio management and governance (Hsu, 2004). By virtue of their large investment amounts, PE firms typically consider each company as an individual investment, while early-stage VCs may adopt a portfolio approach to investment. According to Praet and Schindele (2016), PE firms concentrate on buyouts and restructuring, while VC firms focus on early-stage investments.

For this research, however, the angel investment stage and PE firms are excluded, as the focus of the study stays on the VCs early stage or seed funding stage. Figure 1 shows the various stages of VC funding with early-stage funding, including personal funds, angel investors or crowdfunding, and seed funding, while late-stage funding includes subsequent Series A/B/X and special purpose or pre-IPO funding. In Figure 1, stages are depicted as avenues for funding, and not all entrepreneurs will go through each phase. If the entrepreneur has enough personal funds or funding through angel investors, they may use that to create the product and market and divest little equity at the early investment stage. At various stages of funding, the VCs will leverage different set of indicators that are available to make sound funding decisions. While initial stages have limited information, the
funding decisions could be based on predictive (lead) rather than performance indicators (lag).

1.2.2 Lead and Lag Indicators

VCs’ funding decisions are based on criteria that convince the VCs of the opportunity and value that the investment will generate. VCs will typically look at lead indicators (future performance predictors) and lag indicators (current performance metrics). Lead indicators are guestimates or calculated risks based on VC beliefs, experiences, and insights. With the huge shift in market dynamics post year 2000, the technology landscape and adoption has accelerated, making lag indicators a reactive approach to understand the market (Beaudry, 2016).

Researchers have criticized lag indicators since these tend to be reflective of actions taken rather than strategic or planned initiatives (Anderson & McAdams, 2004). Within the VC funding environment, lead indicators are signals that demonstrate the firm’s potential, like entrepreneur background, market growth, product viability, analysts, or industry accolades (Allison et al., 2015; Drover et al., 2015; Taylor, 2019). On the other hand, lag indicators are the actual performance of the firm, based on which VCs evaluate the viability of the investment and the ability of the firm to generate value (Gompers, 1996; Hsu, 2015; Linder & Sperber, 2020).

Within the concept of information asymmetry, lead indicators are highlighted as signals that provide the investor with some information to mitigate the gaps. During the research, the terms lead indictors and signals are used interchangeably to highlight in-tangible decisions criteria for VCs.
Figure 1 highlights various stages of VC funding, not necessarily in a linear or sequential approach, but how VCs fund entrepreneur firms and potential lead and lag indicators used as funding criteria. Stage 1 is where entrepreneurs may fund the firm through personal funds, or funding from personal funds of high-net-worth individuals or angel investors who evaluate the market, entrepreneur, and the concept before providing funds (Allison et al., 2015; Drover et al., 2015). The first and the earliest formal stage of funding through VCs tends to be at the seed capital stage, where the VCs manage a portfolio of companies, and those decisions could potentially be based on lead indicators like market, entrepreneur background, product potential, and competitive landscape (Hellman and Puri, 2000; Gompers et al., 2020). As the entrepreneur firm creates commercially viable products, gains market share, has a steady stream of revenue and tangible assets – a combination of lead and lag indicators form the basis of subsequent funding decisions (Gompers, 1996; Hsu, 2015; Gill & Walz, 2016; Linder & Sperber, 2020).
Figure 1: Stages of Entrepreneurial Funding

Focus of the Study

Stage 1
- Personal Funds, Angel Investors, Crowdfunding
  - Entrepreneur credentials
  - Market attractiveness
  - Peer performance
  - Product MVP

Stage 2
- VC Seed Funding
  - Entrepreneur Abilities
  - Attractiveness of Venture Idea – Market, Product & Innovation, Third-party signals (industry validation)

Stage 3
- VC Series A/B/X Funding
  - Balance Sheet
  - Customer portfolio
  - Commercial Product (Patents and IP)
  - Financial Ratios
  - Performance

Stage 4
- Pre-IPO Funding
  - Balance Sheet
  - Market Share
  - Market Size
  - Peer Group Valuation
  - Analysts reviews and third-party validation
  - Equity Markets

Lead Indicators (or Signals)

Lag Indicators

High Information Gap

Low Information Gap

Note: VC Seed Funding (highlighted in the dark box) is the focus of the research study. Stages are depicted as avenues for funding, and not all entrepreneurs will go through each phase. Additionally, these are not linear funding flows.
1.3. Context of the Study

The paper examines the criteria that VCs use to manage their investment risks at the earliest stage of venture financing. At the earliest stage, there is lack of data and assessing potential for success comes down to the venture idea and the entrepreneur. Past literature has examined decision criteria for VC funding and emphasized factors like market conditions, technology, environmental conditions, and entrepreneur’s teams as key influencers for VC funding (Kaplan & Stromberg, 2000; Petty and Gruber, 2011). However, these studies have examined decision factors as a string of factors assuming homogeneity across funding stages.

The premise of the paper is that not all stages of VCs funding have similar information for the VCs to make funding decisions and the VCs tend to leverage certain lead indicators to prioritize their bets and manage risks. There is a high level of uncertainty and ambiguity at the seed stage of funding, and the traditional approach of hedging risks or mitigating with in-depth information is conspicuously missing in the seed funding stage (Dimov & Murray: 2008; Hoenig & Henker, 2015; Gompers et al., 2020). In a highly interdependent relationship, VCs rely on entrepreneurs to create valuations that exceed average market returns, while entrepreneurs rely on VCs to support their growth, provide an ecosystem for operationalizing the product, and create a go-to-market approach (Gompers et al., 2005). The trade-off across risk and benefits is a classic feature of any asset pricing theory and especially relevant where the risks are elevated, and information is rare. Much of the effort of the VCs is pivoted around hedging against information
inadequacy related bets, either through entrepreneur firm valuation or through contractual terms and conditions. Financial researchers believe that the asset pricing equilibrium is reached when the VCs are convinced of the expected benefits (Holmstrom & Milgrom, 1987; Prendergast, 1999). Investors will typically balance the idiosyncratic risk against anticipated gains from the investment (Alvarez & Jermann, 2000) and, at an equilibrium pricing that is based on the potential risk and anticipated rewards, will either invest or decline the opportunity. Reaching the optimal asset equilibrium approach requires upfront screening, access to information, and expected cash flows from the investment.

1.3.1 Early-Stage Venture - Venture Idea and the Entrepreneur

Entrepreneurship researchers like Venkatraman (1997) and Shane and Venkatraman (2000) while studying the venture creation process highlight that the venture creation process can only be understood once both the entrepreneur and the opportunity are taken into consideration. More recent researchers argue that although a lot of work has been done around entrepreneurship, research on how opportunities are developed or exploited is still in development stage (Dimov, 2007; Hill & Birkinshaw, 2010). The venture idea and translation of that venture idea into opportunity remains an area of research across entrepreneurship studies and it is even more ambiguous for funders who rely on their understanding and entrepreneur information to make financial decisions. Vogel’s (2017) model of defining a venture idea starts with the concept of idea creation, including sourcing or development of an idea for new products, services, business segments, unique
customer needs or a combination of these factors (Kier & McMullen, 2018). VCs will evaluate some of these components before making financial or resources decisions to understand the viability of the venture idea.

Some of the more recent researchers have placed greater emphasis on the venture idea and the feasibility of such idea as compared to the creator of the idea or the entrepreneur (Maxwell, 2016; White & Dumay, 2017). However, other researchers continue with capabilities of the entrepreneur who has envisioned the idea and translated that into opportunity is the key contributor to the assessment process of the VCs (Fried & Hisrich, 1994). Harrison & Mason (2017) argue that early-stage investors will place significant importance to the credentials and ability of the entrepreneur, including their experience, track record, skills and education. The entrepreneurs are the one who seize and convert the venture idea into an opportunity and ultimately a business. Gunter (2012) says that entrepreneurs are “individuals who in an uncertain environment recognize opportunities that most fail to see and create ventures to profit by exploiting these opportunities.” Entrepreneurs leverage their experience and abilities across social networks, product knowledge, and industry expertise to identify and seize new opportunities. Resource-based theorists like Alvarez and Barney (2007; 2010) call out entrepreneurs as individuals who seize opportunities within market imperfections, political conditions, regulatory changes, demographic shifts, and social factors better than others to create an entrepreneurial firm. Other researchers like Maxwell (2016; White and Dumay, 2017) argue that the funding decision will follow a sequential
evaluation path, where assessment of the entrepreneur will only happen post understanding of the venture idea and its feasibility.

Researchers argue that funding and operationalizing comes after the entrepreneur identifies an opportunity and creates a venture idea. Hougaard (2004) believes that a venture idea needs to be interwoven with external market factors to be successful. Others look at venture idea as a concept of the entrepreneur and part of the firm’s start point (van Werven et al., 2019). Irrespective, the venture idea defines what the entrepreneur venture will do, what market it will address, how the product will differentiate from other products and eventually, how the venture will provide returns to the investors. Davidsson et al. (2021) argues that research has typically looked at the venture idea in conjunction with the entrepreneur, since the idea comes from the entrepreneur. However, the idea by itself deserves merit and VCs need a clear understanding of the idea without the rhetoric of the entrepreneur (van Werven et al. (2019). Davidsson et al. (2021) says that the evaluation of venture idea has not reached the level of maturity as funding for late-stage investments. Similarly, Dimov (2007b, p. 717), argues the need to evaluate venture idea along a continuum, saying that “the main deficiency of this line of research is the conceptual collapse of the time between a first insight and the [opportunity] that ends up being implemented.” The iterative nature of the decision gets refined by the entrepreneur, and hence requires a fluid approach by the VCs as they process such information. Evaluation of the venture idea become more difficult since the antecedents of the venture idea is either mental image and description of a future
venture (Dimov, 2007; Wood & McKinley, 2010) or set of circumstances labelled as opportunity (McMullen & Shepherd, 2006).

In VC funding world, the definition becomes even more critical since the venture idea is only the starting point, that needs financial and people resources to be further developed until it translates into a commercially viable product for the market (Afuah, 2003). The information gap and the criticality of understanding how the venture idea translates to a viable product makes the funding decisions even more complex compared to later stage, where the product is already developed, and VCs clearly understand the market and customer adoption. Not all venture ideas develop into venture opportunities and commercially viable product, creating a lot more need for diligence for external funders (Dimov, 2007b; Venkataraman et al., 2012). For this study, the definition of venture idea is based on how Davidsson (2015) defines venture idea “combination of products/service offering, markets and means of bringing the offering into existence (p.683).

These combination of products and services culminate into entrepreneur creating an entrepreneur firm. Luger and Koo (2005) argue that a firm to be considered a startup needs to meet three conditions – the firms need to be new, they need to be active (not set up as a hobby), and they should be independent (not a part of a large organization). Keeble (1976) says that a startup firm means “creating an entirely new enterprise that did not exist before”. Others like Hadden (1977) argue that a firm just by being new cannot be considered a startup – it needs to be active rather than just set up on paper. Since “on paper” firms never transact or
employ resources, they do not need funding or have any impact on the economy. Scott (1980) found that 23% of the firms in Scotland in 1969 never traded or hired employees and existed only on paper, and these firms needed to be excluded from the definition of startups. Finally, a firm needs to be independent and not a part of a business venture of an existing company. Johnson (1978) coined the term “non-founder new firms” to denote companies existing firms set up to exploit market conditions. Once again, these firms should not be considered startups, as their requirements for capital are often met by existing companies and functional businesses.

1.3.2 VC Early-Stage Funding

The criteria VCs use to decide whether to fund or not an entrepreneurial startup has been the focus of numerous studies in the past decade (Zacharakis & Meyer, 2000; Franke et al., 2008; Dovers et al., 2015; Gompers et al., 2020). The criteria and decision-making process have been debated and analyzed using extant studies and post-hoc analysis of the funding decision. One of the biggest challenges of developing any consensus is that the needs of the entrepreneur and the business models are dynamic and keep changing. Each year thousands of entrepreneurs reach out to VCs in the hope of getting their idea or start-ups funded to help them realize their financial and strategic objectives (Petty & Gruber, 2011). In selecting entrepreneurs and investees, the VCs must make complex decisions to shortlist and eventually invest in entrepreneurial ventures (Hall & Hofer, 1993). At the seed funding stage, there is a scarcity of information on the firm and deciding on which
information cues to pick up is always challenging. The selection of entrepreneurial startups to fund is challenging, especially since the entrepreneur firm’s assets are intangible and primarily knowledge-based (Hsu, 2004).

The investment risks associated with such an information gap are mitigated either through proxy signaling (lead indicators) of the entrepreneurial venture (Megginson & Weiss, 1991; Stuart, Hoang, & Hybels, 1991; Biglaiser, 1993) or through a contractual and monitoring based approach to mitigate agency-related issues (Kaplan & Stromberg, 2003). The initial stages of VC funding are also critical since it lays out the roadmap for future investments and intangible benefits of such affiliation with the VCs – “It is far more important whose money you get as an entrepreneur than how much you get or how much you pay for it” (Bygrave & Timmons, 1992). White and Dumay (2017) highlight the sequential nature of funding decisions that change with different stages of entrepreneurial firm and conclude that the needs for startups change as they mature, and so does the VC funding and engagement models. Information opacity, lack of a commercial product, and stream of revenue and cashflows generally constrain the ability to raise external funds, especially debt instruments (Carpenter and Peterson, 2002), making these startups dependent on their own funding and credits, and in some cases angel investments. Debt instruments like bank credits will only become available when there are tangible assets and collateral to establish debt. Waltz and Hirsch (2019) offer insights into startups’ funding dynamics by investigating French manufacturing firms’ financing patterns in the first seven years after setup.
The authors conclude that entrepreneur firms will leverage bank debt and trade credit during the early stage of their funding, where such instruments are available.

VCs tend to come in the post the initial debt funding stage, where seed stage investors may invest within a specialized vertical market to reduce the experiential loss to manage the portfolio (Yang et al., 2009). The industry focus could either create over-reliance on industry growth or mitigate manager performance level risk. Inversely, the additional transaction cost of the VC to control a relationship outside of their industry vertical or expertise makes it unfeasible for the VCs to contribute beyond the first funding for seed capital. It is also pertinent to highlight that past literature examining the VC governance has investigated the relationship with managers primarily through an agency theory point of view while treating VCs as a single entity of funders or external capital (Gompers, 1998; Cumming, 2008). However, growing literature, especially from the last twenty years, has highlighted the differences across external capital providers in their governance structure (Wiseman & Gomez-Mejia, 1998), value generation, and complementing skills (Hsu, 2004). The earliest stage of external funding, especially seed capital, hence becomes a critical funding instrument for entrepreneurs looking to scale and for VCs looking for opportunities to invest in potentially high growth ventures.

In a highly information asymmetric environment, funding decisions at the seed investment stage create challenges that need to be examined as a separate phenomenon. Lange (1982) argues that VCs do not interpret their investment decisions as a gamble but as a highly evolved approach toward identifying the right
entrepreneur firms. However, the lack of relevant information at the seed stage makes the decision a gamble, albeit a calculated one. The argument for VCs taking such a gamble is clear as evident opportunity to generate an above-average return for their investors allows the VCs to raise subsequent funds and expand their portfolio of companies (Dimov & Murray, 2007). As a result of such an information gap, the rigor of selecting and funding entrepreneur ventures is even more stringent at the seed funding stage. National Venture Capital Association (NVCA) defines seed capital as external funding “before the real product or company is organized” (NVCA, 2004). Gompers and Lerner (1999) call out seed capital as the initial and exploratory funding for the entrepreneurs in the early stage of innovation before creating a commercially viable product. Pitchbook calls seed capital the “rite of passage” or “exploratory” approach for young startups.

The phenomenon of funding venture ideas or minimum viable products versus funding an existing business needs to be examined as two distinct yet interrelated series of enterprise financing. The distinction in funding stages is crucial (as depicted earlier in Figure 1), not just for VCs who have access to proxy information for decisions but also for the entrepreneur who provides those signals. Traditionally, researchers have assumed VCs as one homogeneous group with a common investment profile or criteria for investment. However, under late-stage investment, there are tangible results and projections that make the decision justifiable to the Limited Partners of the firm, while early stage of entrepreneur firm creation has the least amount of firm level information publicly available or
commonly shared by the entrepreneurs. During this stage, the VCs fund the entrepreneur based on either feasibility of the venture idea or the credentials of the entrepreneur or a balance of both (Harrison et al, 2016). Wesley et al. (2022, p.1) while studying why venture community provide financial and social resources to VCs say “Indeed, there is little consensus concerning what attributes and information lead to resource support by these resource providers, especially at the nascent stages of new venture creation”. Investors make funding decisions under conditions of incomplete information (Harrison et al, 2015) and could potentially encounter two types of risks – market and agency risk (Fiet, 1995). While market risks relate to external factors that influence the idea adoption, the agency risk are relationship risks (Maxwell & Levesque, 2014) caused by the differences between funders and entrepreneurs. VCs will then try to mitigate the two risks – the market adoption risks, and performance risk or risks associated with the entrepreneurs. At the seed funding for venture idea stage lead indicators act as a signal for the VCs to believe that the investment idea and, hence, the entrepreneur firm will provide them with above average returns. VC funding as a phenomenon is particularly interesting since it challenges the limits of corporate finance, especially around uncertainty and risk management, deciding within information asymmetry, capital asset pricing models, and asset intangibility (Kaplan & Lerner, 2014). These risk-related challenges are further magnified at the seed stage as the information available to make justifiable decisions is limited. VCs face severe challenges at the seed stage stemming from information asymmetry due to the newness of the entrepreneur
firms (Graebner, 2009; Yang & Aldrich, 2017), which increases the VC’s cost associated with finding, funding, and engaging with new ventures. Traditionally, deciding on the valuation of an entrepreneur firm by the VCs is based on a combination of some lag indicators like growth rate, profitability, number of clients, wallet-share or lead indicators like entrepreneur capabilities, market conditions, portfolio thesis, and belief, all of which are based on diminutive information at the seed stage (Shane & Stuart, 2002; Shane & Cable, 2002).

As a result of a lack of information, the cost of information will be greater at seed funding than in an ongoing business with financial performance (Chen, Yao & Kotha, 2009). At the seed funding stage, the VCs manage risk through factors that are not always quantifiable and could include social capital, entrepreneur background, homophily, growth among the peer group, network connects, references by portfolio company, and industry attractiveness. Since the funding is provided with many uncertain conditions, VCs’ proxy metrics or signals to make funding decisions tend to be few and typically related to entrepreneur background and external factors like markets, products, patents, and technology adoption. Additionally, the entrepreneur's true intent in the uncertain scenario is unknown since the entrepreneurs have the most incentive to exaggerate the prospects and the potential (Elitzir & Gavios, 2003; Higgins & Gulati, 2006; Zimmerman, 2008).

Thirdly, VCs at the seed stage may base their decisions on the overall portfolio rather than on each individual firm. The investment needed at the early stage is significantly less than what is required for growth at late-stage investments.
This funding amount then enables VCs at the seed capital stage to create a portfolio of companies allowing the VCs to hedge against performance-related risks while betting on market-related growth. The assumption is that if the markets are disruptive and doing well, some of the portfolio companies will do well, while others will provide average or below-average returns. The portfolio approach and capital funding requirements at the seed stage make this a unique phenomenon that differs from investment in a running business with high capital requirements. VCs can extract a higher rent in a more extensive portfolio since it allows them to allocate funds across multiple deciding factors and hedge from management performance. However, a large portfolio also dilutes the ability of the VCs to post facto engage with the entrepreneurs (Fulghieri & Sevilir, 2009). In addition, the VCs may also decide to specialize within a specific industry or segment or diversify across high-growth industries to hedge against industry-level performance risks. Norton and Tenenbaum (1993) reached out to three hundred venture capital firms to evaluate their motivation for creating a portfolio that was pivoted around either a diversified set of entrepreneurial firms or an industry-specialized group of firms. While specialized and homogeneous firms provide greater ability for information sharing, deal flows, and social networks, a diversified portfolio allows the VCs to hedge across industries’ risks (Bygrave, 1987).

Finally, research into seed funding is also relevant since it feeds into one of the most disruptive trends in the market pivoted around the pace of technology advancement (Danneels, 2004; Millar, Lockett, & Ladd, 2018). The ability to create
market disruption through innovative ideas provides entrepreneurs with democartized access to capital and the supply of resources for growth. As a result of this tectonic technology shift, researchers have started examining seed funding (even crowd-sourced informal channels of funding – Paschen, 2017) as a phenomenon separate from funding late-stage ventures since the cost of information, pecuniary and contractual agency models, and social network strategies differ at each stage of the VC funding life cycle (Kamal & Firmansyah, 2021; Sharchilev et al. 2018; Miller and Bound, 2011).

1.4. Theoretical Perspectives Addressing the Topic

Researchers have argued that the risks associated with VC funding decisions should be analyzed through multiple perspectives that include Information Asymmetry and Signaling (information gap between inside and outside shareholders – Rothschild & Stiglitz, 1976; Botosan, 1997), Transaction Cost Economics (VCs decide on funding decision based on expected benefits and costs of managing investee companies), and Agency management (conflict of interest and agency problems – Jensen & Meckling, 1976). Each of these perspectives has merit and has been leveraged to evaluate the cost of investment and the post-hoc engagement of the VCs with the entrepreneur firms.

1.4.1. Information Asymmetry and Signaling

The topic of information asymmetry has been discussed in various academic fields such as strategy, economics, and finance. The seminal works by Akerlof, Spence, and Stiglitz are some of the most quoted across microeconomics.
where differences in access to information (sellers know better than buyers), signaling (market indicators utilized by buyers), and uninformed decisions made by buyers (mitigated by risk premium) form the basis of information asymmetry. In an entrepreneur and venture capital model, the innovator or the entrepreneur has the inside information on the product, markets, and the opportunity, and the VCs mitigate this lack of information through corporate governance, equity, and contractual stipulations. Since the extent of information asymmetry cannot be evaluated or quantified, researchers have used proxy signals like the market to book ratio (McLaughlin et al., 1998), analyst evaluation (Krishnaswami & Subramaniam, 1998), and growth expectations (Shane & Stuard, 2002; Hopp & Lukas, 2014). Sorenson and Stuart (2001) argued that the VC community tends to be influenced within a spatial radius and during specific times to follow their funding patterns. Entrepreneurs from similar industries and have a common circle of influence, tend to generate greater earnings from entrepreneur funding. However, the liability of newness and smallness affects the VC’s ability to identify and fund new opportunities. This information gap creates an unproven business environment due to a lack of public data, performance history, and firm-level information. The information is even more pronounced at the earliest stage of funding, since all that is available are VC perception of the entrepreneur ability to seize an opportunity and the venture idea that defines the opportunity.
1.4.2. Other Theoretical Perspectives Influencing Funding Decisions

1.4.2.1 Transaction Cost Economics

Although examined and studied by economic gurus (Coase, 1937; Williamson, 1975), transaction cost economics (TCE) has since been embraced by other researchers in the fields of international business, sociology, law, and strategy. Established initially to examine costs of transactions, TCE has been used to evaluate empirical data around vertical integration (build or buy decision), management decisions on governance models, and interaction costs to manage partners and channels. As predominantly an economic concept, TCE today has footprints in corporate governance, firm growth strategy, and, more recently, the agency models associated with managing entrepreneur–VC relationships (Khanin & Turel, 2016). The starting point of entrepreneurs is the decisions for startup capital (debt vs. equity, but quickly moves to using the investor relations for both operational growth and for network or social capital (Cumming et al., 2007; Schwienbacher, 2013). Taking investments will then be based on an expectation that specialized and well-connected investors will bridge the perceived inequalities that entrepreneurs anticipate in their scaling abilities.

VCs will typically evaluate the forecasted return from the investment and expect above average return to compensate for the risk associated with funding the venture. VCs will also assess the costs associated with managing the relationship, investment of their time, and cost of social connection. VC bandwidth is spread across portfolio companies, and their ability to open their networks, support
strategy, and allocate resources is limited to where they see higher and quicker returns. (Cumming et al., 2019).

1.4.2.2. Agency Conflict

Jensen and Meckling (1976) have examined the agency relationship across investors and managers related to firm responsibilities, rights, and pecuniary decisions. The agency relationship of outside equity (VCs) impacts the general direction, control, and strategy based on which the VCs evaluate non-linear benefits associated with each investment decision. Jensen and Meckling suggest that agents and managers solve the normative problems through a series of incentives and contracts to drive down agency costs. From a VC and entrepreneur perspective, this relationship is critical since it can create joint alignment of goals and helps mitigate challenges of information asymmetry. Others like Maestrini et al. (2017) have highlighted information sharing to manage agency relationships. VCs may rely on experience and beliefs to shortlist firms they believe have a higher probability of success in evaluating funding opportunities. These selection criteria have been examined through literature around relative importance (MacMillan et al., 1985), selection framework (Fried & Hisrich, 1994), or through the lens of entrepreneur motivations (Khan, 1987). Some of the opponents of agency mistrust argue that not all relationships tend to be contentious, and the basic concept behind agency theory does not allow for bounded rationality or a common-sense approach as a guiding principle for managing engagement between entrepreneurs and VCs. Shleifer and Vishy (1986) highlight that by partially internalizing the externalities inherent in
providing governance and monitoring, investors can significantly reduce the agency problems due to divergence of interest. Aoki (1995) goes further to say that divergence of views in some cases is necessary for the functioning and success of the firm.

Researchers have built upon various perspectives to examine pre and post investment engagement models, decision influences and entrepreneurial business practices. Agency theory has typically been used to address post facto (post investment) construct of the relationship and how VCs mitigate their investment risks by contractually or financially managing the entrepreneur. Initial research does not support agency construct as a decision criterion for funding entrepreneurs.

1.5. Research Question

Although prior literature has examined the relationship between entrepreneurs and VCs or, in some cases the decision criteria for investing, there has been little focus on the seed stage of funding investment (Colombo, 2021: Wesley et al., 2022). The nebulous and ambiguous venture idea requires the entrepreneur to present and VCs to accept the various factors contributing to success of the idea and potential for the VCs to create valuation. Past studies have examined VC decision making through post hoc studies based on companies that go public (since data is readily available), conducting surveys or by analyzing VC manifestos that are shared in public. In all cases, there is inherent survival bias (only successful companies get accounted for), rationalization predisposition (rationalize post facto decisions that succeeded), and unrealistic claims (advertise
only what allows VCs to generate investment). Additionally, researchers find that the investment decisions are dynamic and vary across the funding stages of the entrepreneur and should be considered idiosyncratic.

Petty and Gruber (2011) examined 3631 deal proposals over eleven years from a European VC firm and found that the decision-making criteria do vary throughout the firm's funding stages. For example, the authors found that the main reasons for rejecting a proposal at an early stage of firm creation were vastly different than later stage investments, where the decisions were based on firm-level financials. Riquelme and Rickards (1992) evaluated the decision-making of 14 VC firms at early-stage investments and found that most VCs will look at management background and credentials and the existence of a prototype before funding the entrepreneur. However, at later stage investments, the decisions will include more financial data like projected revenue, year on year growth, and firm profit and loss and cash flow statements. Understanding the decision criteria across a cross-section of VCs at the seed stage creates a foundational groundwork for entrepreneurs to prepare for their funding journey.

However, most of these studies are limited in their approach, and there is little focus on the information gaps at the seed funding stage and signals or lead indicators that VCs use to mitigate the information gap. Information asymmetry as a core assumption has been widely leveraged across multiple disciplines but has not been seen as a management concept (Berg et al., 2019) and less so in the seed funding stage of VC investments. The focus of the study is on seed funding criteria
and what drives the VCs to invest in certain types of ventures at such an early stage of the entrepreneurial firm. Funding a venture idea comes with gaps not just in information, but ability to visualize the idea translation into an entrepreneur firm. The research expands the work done over the last forty years on risks associated with VC selection criteria, albeit at the earliest and least information availability stage. Identifying factors that contribute to VCs investing in the entrepreneur and the venture idea lend itself to further research that supports both the entrepreneur who can identify the relevance of the lead indicators to procure funds and the VCs who can crystalize their approach to finding winners.

- At the least information stage, what signals do early-stage VCs capture to mitigate information asymmetry associated with evaluating a venture?

1.6. Research Significance

At a practice level, the research shares experience of VCs who fund seed capital and create a rationale and unimpeachable reason for making investments decisions at the seed funding stage. For entrepreneurs, this research will share with them the criteria that VCs use for funding and identify signals or lead indicators that provide them the best probability of procuring funding. The research will also provide focus for future studies that can potentially leverage longitudinal data across companies that were funded during the seed stage and their performance for the VCs. Although some of the earlier studies have reviewed the performance of
funded companies, but the studies carry a survival bias and fail to acknowledge or address the seed funding exit at subsequent funding stages (exit at Series A, for example). Considering lack of public data of firm performance at each stage of funding exit, the cause and effect of funding cannot be completely understood. The case study approach has sometimes been used for program evaluation (Kennedy, 1979) or a decision over time and, in some cases is triangulated with firm level information or other sources of quantitative data. Yin (1981) argues that a humanistic approach to seeking validity is necessary, even where there are no quantifiable data points, and that validity can be gained through an exhaustive approach to understanding the same questions and problems addressed through other research methodologies. This study will help create a starting point for evaluating multiple VCs across the portfolio performance, and the effectual result of their decisions through multiple other instruments, including case study approaches.

The subsequent section on the literature review shows significant gaps in research related to the earliest part of formal funding (seed), where the entrepreneur approaches the VCs with a venture idea. The circumstances or criteria that VCs use to evaluate the merit of the venture idea unbundled from the credibility of the entrepreneur to operationalize the idea requires research, so that the entrepreneurs can support their venture idea, and VCs can evaluate the merit of the idea, and the ability for the entrepreneur to succeed. The research is structured to develop a deeper understanding of the seed capital funding phenomenon by examining past
literature, identifying opportunities within such literature, conducting in-depth interviews with VC decision-makers, reviewing the applicability of lead indicators for decision making.

1.7 Organization of the Paper

Following Creswell’s (2014) guidelines for research design, the paper is organized into five distinct chapters. The first chapter introduces the topic and highlights the importance of VC funding and differentiates between various stages of VC funds (Figure 1); the second chapter review past literature on the topic, the depth to which researchers have studied the phenomenon, and the inherent gaps in the study that creates a vacuum across the seed capital funding phenomenon that’s become a critical part of entrepreneur journey. The third chapter outlines the research design and the reason why interpretive phenomenological analysis is being used for the study, including the purpose and relevance of the study (Creswell and Creswell, 2017), while chapter four reviews the output from the qualitative research, analysis of findings and chapter five concludes the dissertation, along with summary, implications, and future research to build upon the findings from the research. The research is intended to create discussions and arguments that VCs can share to make sound funding decisions and for entrepreneurs who survive on VC funding to understand such criteria and help them build their business case.
Chapter 2 – Literature Review

2.1 Introduction

Understanding the unique set of challenges that venture capitalists (VCs) face to seed fund an entrepreneur firm is critical since seed capital is generally considered the first formal financial funding platform for entrepreneurs (Gompers & Lerner, 1999). In the absence of cash flows or tangible assets at the entrepreneur firm, debt is rarely available to the entrepreneur (Berger & Udell, 1998). The reliance on seed funding thus becomes pivotal for the entrepreneur to take their venture idea to the market. The valuation provided by the VCs for the stake in the entrepreneur firm in exchange for the seed funds then becomes the basis of subsequent funding as well (Heughebaert & Manigart, 2012).

The funding constructs at this seed stage are vastly different from funding at the late stage or when there are enough metrics to make a calculated decision to create an unimpeachable business case. From a VC perspective, the commercial construct for funding and the firm valuation is loosely based on understanding risk at various funding stages and associated rewards for taking those risks. The early-stage investment, for example, relies on signals and lead indicators that are vastly different from metrics or lag indicators at the late stage.

The key differences stem from the risk profile of the funded asset. Being the earliest stage of any formal funding, seed capital has the least information on the entrepreneur firm or feasibility of the venture idea, and risks are the highest at this stage, but so are the opportunity's promise of returns and potential. Secondly,
valuation at the seed funding stage cannot be treated as a standard firm pricing model since it goes against traditional asset funding models, especially the Capital Asset Pricing Model presented by Fama and French (2004). The asset-based model looks at weighted and discounted future cash flows to develop asset pricing. In the case of seed stage, there are no positive cashflows to create a financial model to price the asset or traditional cost, income, and market-based valuation (Heughebaert, & Manigart, 2012). Thirdly, seed funding is a critical source of financing for the entrepreneur but only a small part of VC portfolio. The VCs understand that funding only at the seed stage will rarely create a large firm with a significant valuation (Rosenbusch et al., 2013). The opportunity cost for the managers to supervise the investment across tens of companies in the portfolio is huge (Gifford, 1997), hence making the funding decision at seed capital become even more critical for the VCs. Fourthly, the VC’s experience and beliefs play a crucial role in their funding decisions at the seed stage. Researchers have argued that since inherent risks are more significant when VCs are dealing with non-quantifiable information gaps, the VCs may lean on their own beliefs and experience to make funding decisions (Dimov & Murray, 2008; Linder and Sperber (2020). These funding decisions could potentially be based on the entrepreneur and their abilities or the merit of the venture idea. However, both are just indicators of success, rather than projections based on existing metrics, creating huge information gap, that becomes lower in later stage of funding.
Finally, assuming the information is a commodity (Shapiro, 2005), the costs for obtaining that commoditized information and the ability to use judgment to value the investments are different at each funding stage. Chan and Park (2015) argue that in most cases, the initial stage of identifying the entrepreneur firm worth investing in requires judgment and certain pre-defined criteria that are based on limited information while using learnings from past decisions (Sohl, 2021). However, despite these inherent differences, past research has looked at funding as a homogenous function with non-idiosyncratic risks, independent of when the VCs invest.

This research attempts to further the work done by researchers on VC funding, albeit with a specific focus on earliest stage of formal funding (seed capital) while assessing the feasibility of the venture idea and entrepreneur, as separate decision stimuli, an area that is often neglected due to a lack of empirical data or available information (Bammens & Collewaert, 2014; Wiltbank, Read, Dew, & Sarasvathy, 2009). The second chapter has three key focus areas. Firstly, it dives deep into past literature to understand where researchers have evaluated VC funding decisions across funding stages. Various studies either try to address the phenomenon or have attempted to highlight signals that VCs use to make funding decisions. The second area highlights signals or lead indicators that have been studied in the past and a specific set of criteria that VCs use agnostic of the funding stage to make funding decisions. The signals or indicators could relate the entrepreneur (for example credentials, experience, education, passion), or the
venture idea itself (for example market factors, peer performance, product IP, venture feasibility). The third area focuses on addressing the gaps in the literature, with specific mention of how most research looks at VCs funding stages as a homogenous function of enhancing return on investment or growth of a firm problem, rather than isolating the seed funding stage as an idiosyncratic stage of VC funding with the least information on the firm. The seed funding phenomenon needs to be studied as a separate research study, and the literature gap highlights the need for exploring such decisions criteria.

2.2 Theoretical Perspectives used in Prior Literature

Some of the initial work by Harvard economist Paul Gompers (1995) examined VC funding through the lens of agency theory, focusing on agency and monitoring costs as a determinant of investment decisions. Gompers reviewed data from 794 VC-backed entrepreneur firms to conclude that most early-stage investments were in non-productized and knowledge-based companies with high technology components that lacked tangible assets. Gompers highlighted that the funding transactions in these low assets intensive firms typically involved greater monitoring, and information costs tended to be higher. More recently, Gompers et al. (2020) asked VCs across 681 firms to describe how the VCs add value to the entrepreneur firm beyond just providing the funds. The key value adds that the firms articulated were providing strategic guidance, networking, connecting the entrepreneurs with potential customers, providing operational guidance, putting in place the board, and hiring the management teams. Entrepreneurs leverage both the
seed capital and the skills VC bring in for their financial growth and stability (Bartzokas & Mani 2004). Since Gompers et al. (2020), other researchers (Arthurs & Busenitz, 2003; Wirtz, 2011; Lindqvist & Mijovski, 2013) have also examined the entrepreneur funding either as an activity associated with the growth of a firm that needs agency constructs (contractual, strategic, financial or resources based) or as a phenomenon associated with managing information gaps (Hoenig & Henkel, 2015; Gompers et al., 2020)

Disparate research studies have examined the VC funding through the pre-facto lens of selecting the right firm to invest in (mitigating information gaps) and post-facto control mechanism for managing that investment (agency construct). Information gaps will typically be addressed through proxy signals, and once invested, the investments are protected by agency agreements and contracts (Grossman & Hart, 1986; Hart & Moore, 1998). However, most of the research has evaluated the information gap as an attribute rather than as a continuum of risk that changes over the life of the entrepreneur firm. Studies show that as a firm grows, the information available to make an investment decision by VCs becomes more tangible and unimpeachable (Amit et al., 1998); hence the risks are reasonably predictive. Uncertainty and risks are often associated with these startup firms, particularly in today’s high technology industries where capital investments are huge, and technology viability and adoption could take continued investments in developing the product (Gompers & Lerner, 2001). Since information is scarce during the seed funding stage, VCs tend to rely on signals like entrepreneur history,
market factors, VC experience from similar investments, and in some cases, peer recommendations. The paucity of information at the seed stage is typically managed through assiduous screening criteria and approach. However, once invested, the VCs could mitigate some risks through agency construct by putting in legal and financial stipulations on funding (Jensen & Meckling, 1976).

Additionally, VCs may also stage the investment funds to ensure that the funds are being utilized towards agreed upon expenses. The VC concerns are that an entrepreneur may invest the seed capital in areas that directly benefit themselves rather than driving firm growth or creating value for the VCs. Since the equity and management control continue to stay with the entrepreneur and day-to-day operations and investment decisions are the purview of the entrepreneur, the risk of opportunism tends to be high (Ting, Chen, & Bartholomew, 2007).

2.2.1 Information Asymmetry and Signaling

VCs will navigate the funding decision by managing the information gaps through a decision criterion that allows for greater opportunity for success. The benefits associated with risky investments can quickly dilute the benefits of wrong decisions based on partial information (Landström 2017). VCs expect entrepreneurs to share their vision, articulate the areas for funding utilization, and bring their experience and expertise to bear as a part of the information sharing exercise at the investment stage. Information sharing is defined as the exchange of timely and useful information (Heide & John, 1992), and non-sharing of such information creates gaps that are generally attributed as the main reasons for VCs being
selective in their investment decision (Sahlman, 1990; MacIntosh, 1994; Landström, 2017; Wilson, Wright, & Kacer, 2018). Information asymmetry is a situation where one party has better information than the other (Akerlof, 1970), and in the case of a VC–entrepreneur situation, information is often shared unequally among VCs and entrepreneurs, especially where the entrepreneur has a vested interest in seeking funds for their venture.

Financial economists have extensively examined markets with asymmetric information to illustrate the risks and costs associated with information gaps (Ragozzino & Blevins, 2016). George Akerlof, Michael Spence, and Joseph Stiglitz, who are considered the gurus of the modern theory of information theory, highlighted the nature of information gaps and the impact of such gaps across disciplines of economics and finance and subsequently on strategy leading to opportunism in the absence of active information sharing (Lofgren, Persson, & Weibull, 2002). To illustrate the idea of information asymmetry, Akerlof (1970) uses the example of used cars, where the seller has more information than the buyer, and the opportunity to buy the car comes with risks of information gaps. VC investment decisions face similar challenges as the buyer of a used car since the paucity of information, the newness of the transactions, and in some cases, the perceived credence of the entrepreneur in the absence of empirical and longitudinal data raises costs of funding the entrepreneur ventures (Mitchell & Singh, 1992; Gompers & Lerner, 2004; Graebner, 2009; Hopp & Lukas, 2014). Research has shown that since the valuation of the entrepreneur firms is based on growth
expectations, the risks of not obtaining the correct information can be quite high (Brazel, 1987; Shane & Stuart, 2002).

Von Neumann and Morgenstern (1947) and Savage (1954), building upon some of the work by 18th-century economist Bernoulli (1730), have argued that rational actions are based on prior and subjective probability distribution. They argue that an agent will behave differently when the outcome is unknown versus when the product can be highly predicted (Dow and da Costa Werlang, 1992).

Other theorists (Schmeidler, 1982; 1989; Gilboa, 1987; Gilboa & Schmeidler, 1989) have differentiated between uncertainties and identified risks, borrowing from the fields of statistics, dynamic programming, and game theory. The authors have argued that considering bounded rationality and historical memory, the players will play based on what they know and how they perceive the move by others in cases of partial or gaps in information.

Like other financing institutions, VCs will assess the investment opportunities that provide them the best return in a risky seed funding environment.

### 2.2.2. The Venture Idea and the Entrepreneur

Davidsson et al. (2021) leverage the McMullen and Shepherd (2006) conceptual framework of entrepreneurial action to carve out subsegments of understanding the venture idea in and of itself, without the influence of the agent (entrepreneur in this case). Using the third-party assessment of the venture idea, the authors evaluate the merit of the opportunity unbundled from the entrepreneur who discovers and evaluates the opportunity to pursue. Davidsson et al. (2021, p4)
research the third party (funders in this research) evaluation of “Is the idea (in and of itself) a sound basis for a new venture?” For this study, and leveraging the above model, the research examines “is the venture idea a sound basis of funding” and “does the agent (entrepreneur) have what it takes to pursue this idea”. Davidsson et al. (2021) model focuses primarily on the venture idea assessment (VIA) and how external stakeholders comprehend the merit of the venture idea from a third-party view.
Figure 2: Third Party vs. First Party Assessment Logic

Source: Davidsson et al. (2021) use an extension of McMullen and Shepherd’s (2006) third versus first person assessment logic.

The authors emphasize that venture creation is an iterative process and involves multiple contributors, stakeholders and teams and the assessment changes over time. The authors also argue that venture ideas as assessed by multiple stakeholders may solicit different responses based on the type of support or
experience of the assessor. Additionally, McMullen and Shepherd (2006) say that entrepreneurs will process stimuli or market uncertainties in different ways. Using Milliken’s (1987) model of uncertainty related to “state” (what is happening out there), “effect” (how will it impact me), and “response” (what am I doing to do about it), McMullen and Shepherd (2006) argue that entrepreneur actions are dictated by belief and desire, where belief is the act itself, while desire is dictated by motivation. Understanding the ability of the entrepreneur to navigate uncertain conditions through belief and motivation, requires not just understanding the opportunity, but also entrepreneur competence.

The venture idea as assessed by the entrepreneur then moves to venture creation based on the evaluation of the entrepreneur of the idea (Dimov, 2010). However, when viewed by a third party (VC in this case) the confidence in the idea and the ability of the agent (entrepreneur in this case) to convert that idea to venture become critical components of the assessment to commit financial resources. Past research has not focused on assessment of both the venture idea and entrepreneur as purely assessment (positive or negative), but mostly from the outcome of funding or approval perspective. The venture idea merits assessment by itself, independent of the entrepreneur who has already bought into the venture idea, and inversely, so does the entrepreneur who goes through iterative process of refining the venture idea as a part of the venture creation.

Some of the past literatures have also tried to separate the concept of venture idea from venture opportunity. Dimov (2007b) argues that research tends
not to consider the conceptual gap between the first idea (venture idea) and ultimately what gets converted to venture opportunity as an iterative process. Ward (2004) says that not all ideas will commercialize as these venture ideas will get transformed, modified, and extended, and may even get rejected as the entrepreneur goes through their own cognitive process. In the similar vein, the VCs will evaluate the venture idea presented to them (primarily as a venture opportunity) based on their cognitive decisions and taking the venture idea to opportunity and funding it to commercialize.

2.2.3. Evaluating the Entrepreneur

Sorenson and Stuart (2001) argue that the VC community tends to be influenced within a spatial radius and during specific times to follow their funding patterns. The homophilic nature of humans influences VCs, who seek entrepreneurs with a similar background. Entrepreneurs from similar industries have a common circle of influence and tend to generate greater rent from funding and create greater value. Liability of newness and smallness influences the VC’s knowledge of new investment opportunities. This lack of awareness is further compounded by information gaps within the unproven entrepreneur firm. Linder and Sperber (2020) collected data from 176 investors from 23 different German financial institutions and found that factors like similarity with the entrepreneur play a crucial part in funding decisions. VCs tend to overfund where they see similarities between themselves and the entrepreneur and underfund where they do not. Where goals between VCs and entrepreneurs align, the interpretation of information or signal is
based on an approach of rationality and a common interest (Malmendier & Tate, 2005a).

Validation and understanding of VC decisions and frameworks in the past have been impeded by the availability of data and a longitudinal view of the entire process and outcome of seed capital investments (Riquelme & Watson, 2002). Studies have examined the risk parameters and rent expectations for VCs who invest in entrepreneur firms and risk mitigation strategies by entrepreneurs to manage their firms. Entrepreneur firms try to mitigate growth risks by managing capital (debt vs. equity) and identify opportunities to create social capital by engaging with VCs that bring a degree of specialization outside of capital infusion (Cumming et al., 2007; Schwienbacher, 2013; Wesley et al., 2022). Understanding these decision criteria, integrated with post-investment engagement and impact on strategy within the emerging market context, could be a starting point for venture capital funds to create their investment decision matrix. Riquelme and Watson (2002) created a questionnaire with 73 empirical data points to assess VCs' "belief structure" in funding new ventures. The authors interviewed 30 VCs to create these decision points and surveyed 147 VCs to identify patterns, causation, attribution, and rules that VCs leverage as a part of their decision matrix. Their study reflected on four key decision patterns with multiple variables. The managerial team of the entrepreneur drove the highest number of variable linkages (ambition, traits, commitment), followed by market attractiveness (size, growth) and product (competitive advantage, patent, technology). The study did highlight numerous
attributes and their affiliation with key decision drivers but was limited to primarily United Kingdom (UK) VC market and, like other similar studies, did not differentiate between funding and risks across the stages of VC funding. Additionally, the study mixes personality traits with capabilities, and there are no control mechanisms to reflect the industry, age of the company, location, and size, nor does it reflect on inherent funding risks and mitigation as a funding determinant. The study also does not include decisions reflective of the VC portfolio or social construct.

Although not baked into an upfront decision criterion, the likelihood of a VC investing in an entrepreneur also depends on what provisions and controls the entrepreneur accepts from the VC (Drover et al., 2013). Several studies have examined funding decisions as a symbiotic relationship between the VC and the entrepreneur, where the VCs and the entrepreneurs sort and seek out each other based on standard parameters (Sorensen, 2007). More experienced VCs will identify better companies based on their experience and trust in each other (Bottazzi et al., 2016), social or cultural proximity (Hedge and Tumlinson, 2014; Bengtsson & Hsu, 2015), shared interests (Murnieks et al., 2011) or where VCs have a specific focus on the market or product category (Bengtsson, 2013). Some of the more recent studies (Speigel, 2017) has expanded the definition of entrepreneur capabilities to include entrepreneur ecosystem, the industry they operate in and their social connects as a decision criterion. Other researchers have argued that business context and external factors are more critical than the
entrepreneur, since VCs can use contractual provisions that allow them to replace the entrepreneur for any misconduct, fraud, or incompetence to better manage agency risks (Bruton et al., 2000; Harrison, et al., 2016).

2.2.4. Understanding the Venture Idea

In addition to the credibility and credential of the entrepreneurs, researchers have also reviewed the venture idea itself and the external factors that influence the venture idea (Davidsson et al., 2021). Davidsson et al. (2021) develops the concept of Venture Idea Assessment to evaluate the factors that contribute towards understanding the feasibility of the venture idea unbundled from the agents (entrepreneurs) associated with the idea. Academic papers that have examined angel investors believe that these individual investors try to mitigate and control risk through better understanding the venture idea, rather than trying to mitigate agency risks that they cannot control (Harrison et al., 2015). These market risks within which the venture idea exists are reflected in the decision of investors to fund entrepreneur firms in the early stages. Traditional concept of venture idea has typically been attributed to first person narrative of the entrepreneurs who identify and evaluate opportunities to pursue (Scheaf et al., 2020; Wood & McKelvie, 2015), and as a result tend to ignore the iterative process of identifying an opportunity and refining the venture idea (Dimov, 2007; Sarasvathy, 2001).

Additionally, the examination of the venture idea from perspective of the entrepreneur carries an inherent bias and tends to ignore any external validation or understanding, especially by the funders, who then leverage signals to interpret the
feasibility of such ideas at the seed capital stage. Some of the recent research has tried to examine the concept of opportunity belief and evaluation, terms typically used by entrepreneurs for evaluating venture idea, through the lens of external funders (Drover et al., 2017). However, Davidsson et al. (2021) argue that such assessment of stimuli used by entrepreneurs to evaluate feasibility of the venture idea has not been extensively studied and has not reached a level of maturity, compared to understanding stimuli by the entrepreneurs for decision making. In the absence of credibility or temporal assessment of the variables or stimuli used by entrepreneur to decide on the venture idea, the VCs will rely on signals and their interpretation of the signals to substitute the entrepreneur rationale.

Past literature, while developing on interpretive signals, have examined the investment decision of VC firms through multiple substitutes including industry specialization, market characteristics, and product lines (MacMillan et al., 1987). MacMillan et al. (1987) surveyed 67 VCs, who rated 150 ventures that they had supported and confirmed the assumption that VCs will typically evaluate the market within which the venture idea exists prior to making investment decisions. However, looking at a single dimension on such a prominent aspect creates a circularity problem with self-reporting and confirmation bias (Creswell & Miller, 2000). Albeit conducted with a small set of companies (17 companies, applying 19 interaction points), Sandberg and Hofer (1987) show that product heterogeneity creating entry barrier and market disequilibrium is another criterion that VCs factor into their funding decision.
Khan (1987) evaluated a set of criteria using the conjunctive and disjunctive approach to the model decision process of 36 VCs to examine the funding decisions and concluded that VCs’ “desire for success” and “uniqueness of the products and services” were influencing their decisions to invest in an entrepreneur firm. Venture funds that manage large portfolios will tend to decide based on what they see and how similar entrepreneurial firms have previously behaved. During seed funding, there is little data underlying the risk parameters of entrepreneurial firms (Zacharakis & Meyer, 1998; Kirsch et al., 2009;). Vogel (2017) goes a step further to say that venture idea is primarily a vision, a fuzzy view of how the product will eventually commercialize. The process involves development for the market, potential for customer adoption and business-related consideration (Schilling, 2013). VCs at the seed stage will have to make funding decisions based on understanding the potential through signals or proxy metrics without specific business case numbers and revenue run rates. Quality of information around seed investment is hard to forecast with reliability (Zacharakis & Meyer, 1998), and industry and proxy signals that allow VCs to mitigate information asymmetry risks are few and require VCs to interpret signals that are judgmental at best (Arthurs et al., 2009; Connelly et al., 2011; Ahlers et al., 2015). The task of interpretation of signals becomes even more complex with the changing technology adoption and digital led transformation. Converting a technology led idea into a venture is often an iterative process.
The older concept of product development through research and creating the “final product” for market launch has given way to an agile and iterative approach to creating innovation. Pisano (2019, p. 142) says that “structured approaches like phase-gate model …. prescribe a detailed sequence of steps and activities”. However, if a developed process and the right feature set cannot be determined right up front, entrepreneurs create fluid innovation and an iterative set of features (Pisano, 2019). Most established firms that hedge their risks through well-drawn processes and a structured approach are slow to react to technology changes and that is where some entrepreneurs play (Lichtenthaler, 2020). Digital transformation, lean thinking, agile innovation, and scrums play a key role in an entrepreneur’s product development cycle. The iterative nature of technology and product development makes it difficult for an entrepreneur to determine a commercially viable product at the venture idea stage, and even more so for a third party (VC in this case) to visualize and assess the feasibility to fund.

2.3. Synthesis of Literature

Information asymmetry and signaling proponents believe VCs will rely on proxy signals or lead indicators to fill in information gaps, especially when presented with the venture idea at the seed stage. Other researchers cite agency theory to argue that VCs may need active intervention and structure to manage the opportunistic and irrational behavior of the agent (entrepreneur). Some of the past literature has also looked at information gaps and agency construct as cause and effect (Kaplan & Stromberg, 2000; 2001; Fried & Hisrich, 1994). Since there is a
paucity of information at the seed capital stage (cause), VCs tend to create contractual and financial constructs that manage agency friction (effect). The lack of information compels the VC to protect their investments through contractual requirements or financial control through staggered release of funds (Sahlman, 1999). Staggered capital infusion keeps the entrepreneur on an agreed upon track and reduces the VC exposure in case of a bad decision.

Information asymmetry and agency construct affect each stage of VC funding and selection criteria. This initial information set is typically subjective, especially in a seed funding environment supported by few tangible assets or any existing revenue. The interpretation of the data, either of external factors for the venture idea like the market, competition, and growth or internal factors like entrepreneur background, patent, product differentiations, and features, is based on idiosyncratic experiences, portfolio expectations, and cognitive mindsets (Daft & Weick, 1984), raising the question on the quality of such interpretation (Rasche & Chia, 2009). Behavioral researchers have also examined the cognitive and perception issues of VC decisions (Landier & Thesmar, 2008) to argue a need to study subjectivity in funding decisions. Linder and Sperber (2020) call the cognitive differences perceptual asymmetry, where VCs tend to believe that they know better than an average person and tend to invest based not on facts and data but their perception of the opportunity. VC may think that they can better manage risk, understand the quality of the opportunity, and invest in better projects based purely on their perception of their abilities (Broihanne et al., 2014).
2.4. Gaps and Opportunities

Existing literature has aided us in understanding what criteria the investors use to evaluate the merit of the entrepreneur firm, but it begs an important question on why they use certain criteria. The study examines how VCs manage risks in decision-making in uncertain conditions and the trade-offs between the appeal of the venture idea and the credentials of the entrepreneur. Most studies have looked at combing all the criteria as a framework for managing risks associated with venture evaluation. Building on these studies, the research will evaluate what approach or what criteria early-stage VCs deploy to manage their investment risks. Some of the more recent research still reflects the gap in literature across various aspects of decision making, especially at early stages of investment. “While there is depth in extant research concerning the importance of financial and social resources, few studies provide a more granular view illuminating why experienced venture community members are willing to confer resources at the nascent stages of venture development” (Wesley et al., 2022, p.1). Over the past twenty years, there has been little research evaluating selection decisions during the seed stage and its specific idiosyncratic nature of risks. Although researchers have acknowledged that there are different stages of investment and the criticality of startup capital, but they have not focused research specifically on the seed funding stage. The funding Stage column in Table 1 highlights the gaps inherent in the research, where focus on VC funding or decision criteria tends to be independent of the funding stage. Some of the earlier researchers (Amit et al., 1998), in fact, argue that VCs prefer investing in
later stage funding rounds rather than at the seed stage due to reasons of unimpeachable commercial logic, hence more research is conducted where data is readily available. Other studies have ignored the heterogeneous nature of the VCs themselves and their ability to leverage signals that are inherent to their operating models and business purpose.

More recently, Wesley et al. (2022) argue that extant literature has addressed characteristics of the entrepreneurs and factors leading to funding decisions, but those decisions vary over time and there is little consensus on what constitutes desirable attributes for the VCs to fund. The authors also argue that past studies examining decision criteria have ignored differences based on VC experience, background, and ignored the uniqueness at the nascent stage of the firm. The varied findings over the years have not provided much guidance to allow the entrepreneurs to leverage such studies to tailor their pitches and venture ideas and successfully obtain funding. What would be relevant in a running venture with metrics, and past data is not applicable during seed funding since this is the stage with the least information. In addition, the cognitive process of interpreting signals related to the venture idea while assessing the quality of the venture and potential for success at the initial stage of funding is typically driven by the experience of the VCs (Huang & Knight, 2017), which gets discounted when assessing quality of the entrepreneur firm based primarily on data. Similar studies have examined the influence of VC experiences, and commonsense approach, to indicate that experience and rationality greatly influence the VCs decision to fund an
entrepreneur (Shepherd et al., 1998). Panda et al. (2020) place emphasis on asymmetric trust in decision making, especially at the early stage of investment, and highlight the significance of intangibles like trust and belief more than a formal business plan or detailed market analysis. Also, research shows that not much has been done to understand the quality of the signals and their association with funding decisions. Drover, Wood, and Corbett (2018) say that concept of “signaling theory remains underutilized, even though it is an appropriate theoretical framework for explaining investor decisions and the success of entrepreneurs in raising early external financing).

Other studies that have focused on early-stage funding have examined VC and entrepreneur relationship through agency interventions, and post investment controls that VCs can put in place to manage the risks, rather than accounting for risks at the selection or investment stage. In either case, the studies tend to ignore the idiosyncratic phenomenon of VC investments at the seed capital stage, especially when the entrepreneur present only the venture idea.
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<td>Wesley et al., 2022</td>
<td>Evaluate how propensity influences venture investors commitment to financial and social resources</td>
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<td>Colombo (2021)</td>
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<td>Edelman et al. (2021)</td>
<td>Examine how new ventures credibly signal the credibility of the firm</td>
<td>Independent of funding stages</td>
<td>117 new ventures that sought funding (Northeastern US)</td>
<td>Highlights temporal nature of signal interpretation during funding stages. “Most signaling research focuses on singular positive signals……assuming the audience is relatively homogenous”</td>
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<td>Davidsson et al. (2021)</td>
<td>To address constraints in prior research on evaluating entrepreneurial ventures.</td>
<td>Early Stage</td>
<td>Past literature</td>
<td>“…..few studies examine how assessment vary over time” Delineates idea from the entrepreneur.</td>
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<td>Svetek, 2021</td>
<td>Review and understand the impact of signaling theory on investments by VCs and Angel Investors</td>
<td>Early Stage</td>
<td>Based on extensive literature review.</td>
<td>Signaling theory remains underutilized, despite it being the key components of early-stage financing. “A lack of an all-encompassing, coherent conceptual framework of signaling to early-stage equity investors has resulted in little theoretical development and increased fragmentation of the signaling literature in entrepreneurship”. p. 72</td>
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<td>Gompers et al. (2020)</td>
<td>Understand how VCs make decisions – pre-investment screening, structuring investments, and post investment monitoring</td>
<td>Independent of Funding Stage</td>
<td>885 institutional VCs at 681 firms</td>
<td>Investors see the management team as more important than market VCs attribute success and failure more to entrepreneurs than market In order of importance – management team, business model, product, industry, and valuation</td>
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<td>Lin and Wang (2019); Sahut et al. (2021); Townsend and Hunt (2019)</td>
<td>Age of entrepreneur as decision criteria</td>
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<td>Linder and Sperber (2020)</td>
<td>The extent to which Information Asymmetry plays a role in investor</td>
<td>Financial institutes – across all stages of funding</td>
<td>176 investors from 23 different German financial institutions</td>
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<td>Courtney, Dutta, &amp; Li (2017)</td>
<td>belief in their activity in funding</td>
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<td>Steigenberger &amp; Wilhelm (2018)</td>
<td>Do signals enhance or diminish the possibility of funding by VCs</td>
<td>Crowdfunding – pre-seed funding</td>
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<td>Signal and third-party endorsements play a crucial role in funding decisions.</td>
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<td>Song, Berger, Yosipof &amp; Barnes (2019)</td>
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<td>Tykova (2017)</td>
<td>Literature review to identify key trends in VC funding</td>
<td>Independent of Funding Stage</td>
<td>Literature review – 314 global articles, 52% US</td>
<td>Key topics include Heterogeneity (affiliation, experience), Signals (certification, contracts), Aligned with VC vision. Funding decisions vary across stages of funding and needs to be studied as such. “……contributes to the body of knowledge on seed funding, which is often neglected at the expense of studying late-stage”.</td>
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<td>Drovers, Wood, &amp; Zacharakis (2017)</td>
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<td>Two experiments using 104 VCs making 1036 screening decisions</td>
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<td>Ahlers, Cumming, Günther, &amp; Schweizer (2015)</td>
<td>To examine signals used by entrepreneurs as information proxy for VC decisions.</td>
<td>Independent of funding stages</td>
<td>Data from October 2006 and October 2011 from the Australian Small Scale Offerings Board (ASSOB)</td>
<td>More than social and intellectual capital, VCs tend to focus on openness of information.</td>
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<td>Allison et al., 2015</td>
<td>Assess how the extrinsic and intrinsic motivating signals impact funding outcomes.</td>
<td>Crowdfunding – pre-seed funds</td>
<td>Global – Analysis of 36,000 entrepreneurs in 51 countries via an online crowdfunding platform</td>
<td>The intrinsic goal of funders is undermined when entrepreneurs signal future extrinsic rewards – motivation is growth.</td>
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<td>Bammens &amp; Collewaert (2014)</td>
<td>To examine the performance of funded entities</td>
<td>Angel investors, crowdfunding, Europe and US – secondary data sources</td>
<td>Relevance of trust in angel investors and entrepreneurs</td>
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<td>Kirsch, Goldfarb, &amp; Gera, (2009)</td>
<td>Is there a dependence on the business plan to decide on the funding decision</td>
<td>Independent of Funding Stage</td>
<td>722 funding requests to a US VC firm</td>
<td>Information is learned independently of the business plan presented to the VCs. VCs decide based on factors like market, product, and entrepreneur.</td>
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<td>Chatterji (2005); Gompers, et al. 2006</td>
<td>Understand the influence of serial entrepreneurs on VC funding decisions.</td>
<td>Independent of funding stages</td>
<td>US-based across leading VC firms</td>
<td>Experience / serial entrepreneurs have greater success, and VCs tend to invest in entrepreneurs with expertise. The study examines secondary data on entrepreneurs irrespective of the stage of investment. Focus only on experience as criteria.</td>
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<td>Mason and Stark (2004); Khanin et al. (2008)</td>
<td>Understand the role of VC Industry Alignment and references</td>
<td>Independent of Funding stage</td>
<td>Based on a review of the business proposal</td>
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<td>Riquelme and Watson (2002)</td>
<td>Examine if VC’s implicit theories and beliefs have empirical validity</td>
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<td>Key decision criteria include Managerial team, Market attractiveness, and competitive differentiation.</td>
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<td>Sorenson and Stuart (2001)</td>
<td>Do interfirm networks in the VC market affect funding decisions</td>
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<td>The spatial concentration of funded companies can manage information gaps within a geographical location</td>
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<td>Understanding of staged venture capital investments when agency and monitoring costs exist</td>
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<td>Gompers (1995)</td>
<td>What are the criteria and processes to evaluate potential investment</td>
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<td>Silicon Valley, MA, Southwest US – 18 case studies describing the investment process</td>
<td>Decreases in financial ratios of tangible assets to total assets, greater market-to-book ratios, and an increase in R&amp;D create repeated monitoring.</td>
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<td>Fried and Hisrich (1994)</td>
<td></td>
<td>Early to Late-Stage funding (seed, first, second, management buyout, leveraged)</td>
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<td>Funding is based on earning potential, New venture ideas (industry and technology agnostic), and management (integrity and record).</td>
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<td>Tyebjee and Bruno</td>
<td>Process and criteria for VC financing of startups</td>
<td>Independent of Funding Stage</td>
<td>Startups in the electronic industry across CA, MA, and TX</td>
<td>Funding decisions based on Market attractiveness, Product differentiation, Managerial capabilities, Environmental threat resistance, and Cash-out potential</td>
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Some researchers have completely underemphasized the phenomenon to argue that there, in fact, is no need to examine the selection process based on VCs and entrepreneurs as actors (Roure & Keeley, 1990). The authors argue that investment decisions can be rationally explained through theories created for other disciplines – organizational behavior, industrial organization, and strategic management. Variables on product completeness, management team strengths, market and growth, and competitive strength are all addressed through theories from multiple disciplines. Bounded rationally, these theories are sufficient to understand the funding decisions. Others have looked at VC funding through a lens of risk management and risk mitigation capabilities and believe that the entrepreneur's inherent capabilities should be enough to explain risks associated with information gaps (Fiet, 1995; Loch et al., 2008).

The prospects of every VC investment depend on the entrepreneur succeeding in an unpredictable market (Eisenhardt, 1989; Newman, 2007). Hence there needs to be mutual trust and expectations that the VC and entrepreneur will not promote self-interest and opportunistic behavior. Some of the earlier research did not focus on treating funding risks and signals as an idiosyncratic phenomenon. Ross (1973) argues that entrepreneurs and VCs are rational and bounded individuals who behave in a manner that maximizes their return, hence more open to sharing information. Strategy and marketing researchers argue that investment opportunities should be treated like any product evaluation process and do not need a separate framework separate from new product evaluation models (Montgomery
& Urgan, 1969; O'Meara, 1961; Pessemier, 1982). However, the authors fail to address or differentiate risk across existing firms with track records and new firms with no tangible assets.

Colombo (2021, p.237) in the Journal of Business Venturing says, “entrepreneurial signaling literature is highly fragmented and thus far, it has failed to offer comprehensive guidance for nascent ventures in search of funding”. Early-stage investors will either focused on behavioral intentions or attributes of the entrepreneur (Maxwell & Levesque, 2014), while prospective IPO investors may evaluate more tangible and market related signals (Colombo, Meoli & Vismara, 2019). However, most literature tends to club the factors across funding stages as a homogeneous set of criteria. Davidsson et al. (2021) in a paper last year in Journal of Business Venturing, concluded that previous research suffers from lack of an agreed upon concept or framework for assessing a venture idea at various stages of venture development. Their paper, while focusing on funding for venture idea, examined the feasibility of the idea delineated from the entrepreneur to remove any selection bias of the entrepreneur. Other such researchers (Warnick et al., 2018; Wesley et al., 2022) have also argued that only a handful of studies address the resource allocation by funders at early stage of investment.

Tykvova (2017) reviewed 314 articles in international journals to examine critical trends or what the author calls "hot topics" in VC and private equity (PE) financing. Of these articles, 67.8% dealt with all stages of VC funding, while the balance focused primarily on late-stage financing. Tykvova also noted the regional
bias, saying that that more than half the papers are based on US data, followed by Europe, and only a few on VC funding across Asian markets. The ones that covered growing China and India markets were focused primarily on internationalization of the VC funding process. The five "hot" topics identified by Tykvova relate to the heterogeneity within the VC industry (based on reputation, affiliation, and experience), causation of VC funding on the growth of entrepreneur firms, the performance of VC funded entrepreneur firms, the process of identifying portfolio companies and internationalization of VC firms. The author indicates that new sources of enterprise funding (like crowdsourcing) are critical gaps in the literature from the last ten years. Similarly, some of the earlier empirical work (Gompers and Lerner, 2001) focused primarily on the structure of the VC industry, while the later ones (Da Rin et al., 2013; Tykvova, 2017) focused on VC contracts and engagement models.

Along the same lines, one of the most extensive surveys is the Kauffmann firm survey, which tracks more than five thousand entrepreneurial firms from incubation to the first few years of their growth (Robb et al., 2010). However, since there is a lack of information, only 1% of the companies in the database are VC-funded, making the database-less relevant for any research on VC funding decisions. Dimov and Murray (2007) examined seed investment across theories of decision making during what they call “the most difficult stage of VC investment” through a behavioral perspective. Authors say they only have a small understanding of the decision process, given high levels of uncertainty and their consequences.
Most of the past research has focused on markets and management teams (Siegel, Siegel, & MacMillan, 1993; Franke et al., 2008), and their data comes from VC decisions across the funding stages. The requirements, the risk profile, and the opportunity costs differ where VCs invest in seed or upfront capital versus investment in a growth stage. Some of this is due to lack of such information, but also since a large part of upfront or seed funding does not get reported or tracked. Additionally, entrepreneurs have traditionally been considered small and local and have not attracted international VC funds, especially at the initial seed stages. The risk and rewards were deemed low, and a structured approach for identifying an investment framework was not needed for these investments.

VC funding is a complex process that varies based on not just the charter of the VC firm but also the personal experiences, peer mentality, expected returns, risk appetite and expectation of their investors, profile of companies in their portfolio, and the market (Narayanan & Levesque, 2014). Although research into VC funding models, criteria for evaluating proposals, engagement models, and agency issues have been studied by researchers, and there is a long history of such research, there has been little work done at the seed funding stage, especially looking at merits of the venture idea and entrepreneur on their own. The information gap in seed funding is vastly different from where performance metrics are already in place and reflective of the entrepreneur’s success or potential (Kim & Wagman, 2016). During seed funding, signals or lead indicators need to be interpreted and eventually justified by the VCs to their investors. Information asymmetry risks and
mitigation through signals can only create assailable justification for investments. Some researchers argue that VC funding decisions are also influenced by the ability to control and actively monitor the entrepreneur, hence the acceptance of agency constraints and obligations needs to be accounted for when deciding on the funding (Bitler & Moskowitz, 2005). However, these post facto measures assume that VCs have enough controlling rights and abilities to enforce the agreement or control entrepreneur actions, which may not be the case nor be desirable (Zacharakis, Erikson & George, 2010). Entrepreneurs, by nature, are risk takers and unconventional (Yoganandan & Vignesh, 2017), while VCs try to manage risks through various factors.

Researchers have a narrow view of the funding decision, limiting what information or data is readily available (Siegel, Siegel, & MacMillan, 1993; Timmon & Sapienza, 1992). Other researchers focused on the experience and history of the team and their success, implying that entrepreneurs with prior experience and domain-specific knowledge can apply those learnings to the newer venture and create a higher success rate in the venture (Matlin, 2005; Adelson, 1981). Franke et al. (2008) dug into funding history to examine past literature to identify critical gaps to understand the funding process and the inherent criteria for selecting an entrepreneur to fund. Most of the reviewed literature focused on 2-3 evaluation criteria and across the entire funding stages. Zarutskie (2010) examined management commitment, and market factors, Chen, Yao, and Kotha (2009) call out preparedness and planning as being critical during investment decisions,
Shepherd (1999) focused on external factors like competition and industry, while Shrader et al. (1997) believe that experience and strategy play a key determinant for VC funding. However, the studies focused on decision parameters and did not differentiate risk considerations at seed stage investment, nor did they look at relative importance and decision mix. Since the resources available with VCs is limited and the survival rates for new venture is low (Shepherd et al., 2000), the decision criteria at the highest point of information gap needs to be studied as unique phenomenon rather than a homogeneous framework applicable across all stages.
Chapter 3 – Methodology

3.1. Overview

Most of the past literature that has reviewed processes, definitions, or frameworks for VC funding has studied them as a phenomenon that is either part of entrepreneurship theories, theory of the firm, agency models, or concepts borrowed from disciplines like finance and economics (Franke et al., 2006; 2008; Petty & Gruber, 2011). Other researchers have highlighted funding as a strategy construct required to create new products and services (Mintzberg & Waters, 1985). The ability to identify risks, deal with scarce information, and create unassailable justification for seed funding requires unimpeachable and rational decision making.

The study aims to understand the phenomenon of seed funding and decision criteria and the importance of such criteria in allocating funds at the seed stage. The methodology is pivoted around the requirement to systematically understand the phenomenon of VC funding in the absence of information typically available for growth or late-stage VC funding. The literature review in Chapter 2 shows that not much work has been done in this early seed stage of VC funding, and there are considerable gaps in clearly articulating such decision criteria or lead indicators that VCs use to justify their investments and eventually exploit non-linear returns.

This chapter is divided into two sections. The first deals with the theoretical definition and background to the selected methodology and the rationale for choosing the methodology (section 3.2), and the second is the research design
Emerging from sciences, quantitative research was leveraged to prove a hypothesis, create theories, or be considered credible within the academic community (Sechrest and Sidhani, 1995). Any other methodology for conducting research was generally regarded as abstract or could not be generalized, verified, built upon, or used to create theories (Guba & Lincoln, 1994; Putnam, 1997). In fact, Starr (2014) complained that field of economics seldomly uses or publishes research based on qualitative methods like in-depth interviews, focus groups, and case studies (Blinder et al., 1998; Bewley, 1999;). Modern day research, however, has focused more on the business problem than the research methodology.

Ontology and epistemology influence the research process, what questions are being asked, and the researcher’s approach to getting the answer. The nature of being (ontology) and the theory of knowledge (epistemology) drive the origin, scope, and rationality of belief associated with gathering information and creating theories. Research, in return, is dictated by the congruence of epistemology and ontology.

From a pure epistemology perspective (Figure 2), researchers have examined the concept of knowledge through three critical lenses - objectivism says that reality exists and needs to be discovered. Constructivism is based on the notion that meaning is constructed, not discovered. Subjectivism indicates that meaning is
not an interplay between subject and object but is imposed by the object (Chia, 2002: Gray, 2021). Within the construct of objectivism, researchers have leveraged the theoretical perspectives on positivism, arguing that research should consider only what can be seen, touched, and interpretivism where researchers believe that multiple realities exist, and research helps find those multiple realities. Positivists will create questions that provide data sets through quantitative research (experiment, surveys, and questionnaires) to establish relationships, while interpretivists may select qualitative methodologies, like ethnography, case studies, phenomenology, narrative, or grounded theory (Creswell & Creswell, 2017) to solicit meaning.

Post-positivism theorists have argued that there is a need to understand social engagement and interactions since there is no one-to-one relationship between the subject and the object. To understand and explain situations, researchers need to focus on the experiences and interactions of the people. A data point in isolation may not hold enough meaning to be applicable. For driving meaning, research needs to study social interactions and engagements (symbolic interactionism) or be grounded in human experiences (phenomenology). In terms of epistemology, interpretivism looks at real-life situations and is often linked to constructivism as a theoretical perspective and phenomenology as a research methodology (Cray, 2021).
Researchers have argued that the purpose of research is to contribute to specific fields or theories and build upon these studies through extant sciences while discovering knowledge and applicability. Credible research will identify and make sense of patterns in either own life, experiences, or social structures and establish building blocks for creating and testing theories that are set of comprehensive and verifiable statements (Hagan, 2006; Babbie, 2007; Berg, 2007).

“We live and act in connection with the existing environment, not in connection with isolated objects, even though a singular thing may be crucially significant in deciding how to respond to the total environment” (Dewey, 1938, p. 384).

Researchers have since tried to give meaning to a heterogeneous set of activities by studying naturally occurring events based on experiences. Mayan (2016) says that researchers leverage qualitative and phenomenological approaches to “make sense
of life as it unfolds.” However, quantitative, qualitative, or even mixed methods have been debated across various research schools even today. Creswell (2014) says that any introduction to research or solving a problem starts with the researcher announcing the problem and justifying why a specific research strategy needs to be applied. The insights required to understand the temporal process of VCs providing initial seed funding for entrepreneurs to start their enterprises are established as the interdependence of many factors contributing to risk management and decision to fund the entrepreneur. The research instrument needs to be designed and aligned with the purpose of such data collection, generating insights, and eventually highlighting the crux of the experience for future researchers.

To mitigate some part of the abstractness of qualitative research and interpret lived experience, human psychologist Moustakas (1994) created a step-by-step approach to conducting research, which was later augmented by researchers like Giorgi (2009) and Pereira (2012) to create a systematic guide for phenomenological research. The eight steps are highlighted in the chapter across various subtopics to ensure that the research follows a rigorous methodology of data collection and analysis. These steps include articulating the rationale for conducting research, identifying an exciting topic or phenomenon, developing assumptions, collecting data through in-depth interviews, generating meaning and themes from the data, developing structural descriptions, reporting the phenomenon’s essence, and presenting the understanding.
3.2.1. Organization of the Chapter

The rest of the chapter is organized into four key sections; Research Design (section 3.3), which defines and defends the approach and highlights the audience for the research; Data Collection (section 3.4), including the instrument, site and interview protocol; Data Analysis (section 3.5) including coding and analysis approach; and Validity of the research and researchers’ positionality (section 3.6).

3.3. Research Design

Researchers have argued that selecting the right research approach and design and specific adoption of the methodology are dependent on the purpose of the research and the research instrument available to the researcher (Urcia, 2021; Cresswell & Poth, 2018). The study to understand risks management phenomenon for VC funding decisions during the earlier stage of funding lends itself to phenomenological study. The intent of the study was to understand the phenomenon and use the authors entrepreneurial background as an instrument for data gathering.

3.3.1. Approach – Phenomenology Research

Phenomenology attempts to understand the “lived experience,” the base level of human experience and social reality grounded in one’s own or someone’s experience and understanding. Husserl (1936) was among the first to examine this in-depth “from what rests on the surface, one is led into the depths” (Husserl, 1999, p. ix). The phenomenological research approach originated from the fields of social sciences and philosophy and was used to create a foundational framework for
comprehending and categorizing information and insights. Every act in the phenomenon is correlated to some underlying variable that lends itself to understanding the phenomenon. Phenomenological research aims to capture those variables (VC signals in this case) that constitute the phenomenon.

There have been two complementary schools of thought on conducting phenomenological research – one by Husserl and the second by Husserl’s student, Heidegger. Inspired by Husserl (1936) ’s work on transcendental phenomenology, Heidegger (1959) took a slightly different approach by adding interpretive analysis to the approach. The first difference between the two approaches is related to the researcher. In Heidegger’s approach, the researcher was considered a legitimate instrument in conducting the research, while Husserl separated the researcher from the research. Moving away from Husserl’s Cartesian mind-body duality approach, Heidegger promoted the existential concept of “being in the world” and leveraging own experiences to interpret the phenomenon. While Husserl asserted that phenomenological research should only understand the phenomenon (reduction), Heidegger suggested that the research needs interpretation as well, and the researcher needs a prior understanding of the phenomenon to interpret the meaning. The second key difference between the two was that Husserl emphasized epistemology (how knowledge is acquired), while Heidegger went a step further to reflect on the importance of ontology (what it means to exist). Finally, Husserl’s understanding of the phenomenon was pivoted around both temporal and spatial
thinking, while Heidegger believed that the fundamental experience of humans greatly influences their being and understanding of the phenomenon.

The approach of this study follows Heidegger’s view on phenomenological research and addresses the research through interpretation of the phenomenon and understanding the existence, rather than just the being. Within the boundaries of phenomenological analysis, the two factors that dictate this research are the “essence” of the experience and the “experience” itself. Leveraging some of the work of Heidegger, interpretivists believe that truth stems from social constructs, influences, and interactions. The research attempts to understand those constructs, influences, and interactions related to VC investment at the seed funding stage. Based on the interpretivism approach to research, the study lends to the approach that seeks “how and why” and is consistent with their ontology and epistemology, thus combining the best of Husserl and Heidegger’s approach to phenomenological research.

3.3.2. Research Approach

The methodology is based on a phased and sequential approach that incorporates the “how and why” experience through qualitative methodology (Messick, 1994).

3.3.2.1. Qualitative Interviews

Lincoln and Guba (1985) state that humans build on their tacit and institutional knowledge. The study leveraged the researcher’s inherent expertise on the subject and exposure to the phenomenon, building on the tacit knowledge to
understand the funding experience. The qualitative interview guide (Appendix B) was used for a sixty to ninety-minute free-flowing interview to develop insights into the following key areas –criteria for assessing feasibility of the venture (venture idea and entrepreneur), criteria to manage investment risks at the idiosyncratic early-stage funding and criteria for making funding decisions at a high noise and low data stage. These three areas will highlight how VCs interpret signals, identify funding opportunities, and eventually put their belief in the venture to generate above-average returns on the investment. Since VCs deal with new-age companies, there tends to be differences in terminology. To avoid any discrepancy in comprehension, the screening questions, the interview protocol, the guide, and the interview itself included meanings of words, definitions of the funding stages, and clarifications on the terms used during the interviews. The intent during the interviews was to create (not enforce) a common vocabulary to ensure data consistency.

3.3.2.3. Rationale

The intent of the study is not to create a generalization or theoretical framework but to highlight the experience of seed fund VCs in funding entrepreneurs. The choice of phenomenological study over grounded theory was based on the objective of the research. The study examines individual experiences, rather than use data to construct a theory (Creswell & Poth, 2018). Grounded theory uses purposive sampling across multiple dimensions of social construct toward theory creation (Creswell & Poth, 2018; Morse & Field, 2013) and seeks
rich data, variations, and differences (Charmaz, 2008) to create a theory based in data. On the contrary, phenomenology uses purposive sampling to interpret the phenomenon and understand what was experienced and how it was experienced (Creswell & Poth, 2018). The objective of the study is “Exploring how individuals make sense of the world to provide insightful accounts of their subjective experience”. Korstjens and Moser (2017, p. 277).

3.3.3. Population and Sample

The prerequisite for researching the essence of lived experience is selecting a sample of participants with significant and deep experience of the phenomenon (Polkinghorne, 1989) and, in this case, the experience of seed funding. Creswell (2007) calls it criteria sampling, implying that the respondents need to meet a certain criterion to be considered for the study. Polkinghorne (1989) says that the respondents should have extensive knowledge and be able to share their lived experiences. Since generalization is not a concern of phenomenological research, the sample representative of the entire population is not a concern (Creswell, 2007; Seidman, 2006).

The segment for the study is early-stage VCs who have invested in the seed funding stage and have the authority to decide on funding investments and manage the portfolio of companies. Keeping in mind the parameters of the convenience sampling method (non-probability and non-random sample), the instrument ensures there is no selection bias or sampling issues (Winton & Sabol, 2021). The 14 interviews were based on screening for early-stage VCs to ensure that they meet the
segment definition and accepted (without any monetary benefit) participation in the study (Etikan et al., 2016). The interviews were conducted via zoom and the respondents were given the option of being on the phone or video. Due to time difference, most of the interviews were early morning or late evening, hence only two interviewees decided to join by video. The calls were recorded and transcribed for analysis. The initial quota was 15 early-stage VC interviews but paused at 14 due to data saturation (Fusch & Ness, 2015).

The segment was screened as follows:

a. Are you the decision-maker (sole or lead) for funding entrepreneur firms? (If “Yes,” move to the next question. If “No,” terminate and ask for a referral).

b. Do you have companies in your portfolio where you funded them at the seed capital stage (define the seed capital stage for the respondents) - (If “Yes,” move to the next question. If “No,” terminate and ask for referral).

c. If “Yes” to both, schedule time for in-depth interviews

All interviews were conducted with India based VCs. However, the research does not try to address the geographic differences across emerging and developed markets, nor does it reflect on cultural differences among the VCs, markets, or entrepreneurs, but uses India as a context of where seed funding has grown in the last decade.
3.4. Data Collection Activities

3.4.1. Data Collection Instrument

Within the realm of phenomenological research, the data collection method is based on collecting individual experiences rather than a common-sense approach and happenings as they exist (Polkinghorne, 1989). Phenomenological researchers collect data about the phenomenon through three sources – either personal reflections, through participants in the study and their experiences, or through third-party sources outside of the study construct (Polkinghorne, 1989). For this study, the data collection instrument was participant interviews. Past phenomenological theorists like Spiegelberg (1964), Stevick (1971), and Giorgi (1985b) propose naïve descriptions prompted by open-ended questions that move the subject to non-theoretical and more experience-based responses. Stevick (1971) recommends not using written questions since those tend to move towards a pre-structured explanation of the phenomenon rather than purely understanding the subject’s experience. Moustakas (1994) proposes the interviews are categorized broadly into two categories. First, using a high level first-order narrative (Elliot, 2005) based on experience, and second, understanding the context and situation that has influenced the experience. Seidman (2006) breaks down the interview into three key buckets – establish context, ask respondents to recount details of the incident, and reflect on the experience and significance for the respondents. Seidman (2006) believes that 60-90 minutes would be considered optimal for the research to cover the three areas
in detail. Most of the interviews took about 60 minutes and only in one case did the study require reaching back to the respondent to get clarification.

The interview guide (Appendix B) formed the basis of the discussions but also provided the subjects enough flexibility to describe their experience. Since phenomenological research is based on conversations where respondents are encouraged to share their experiences, and the researchers only guided the conversation rather than add any bias or dictate conversation, or prompt for responses (Mishler, 1986).

The interviews were recorded after obtaining permission from the interviewees. Adrian van Kaam (1969) proposes that the subjects or the interviewees should be able to express themselves, share feelings and emotions, have an interest in the phenomenon, and share that experience without any bias or prejudice. During data collection, consideration was given to ensure that interviewees were in comfortable surroundings and freely shared their experience without any hindrance or anyone’s presence in the room. The interviewees were asked if subsequent follow-up would be acceptable and any gaps or questions that require clarification will be addressed in the subsequent follow-up.

3.4.2. Instrument Validation

Colaizzi (1978, p. 58) suggests that researchers should follow guidelines for validating the instrument and reflecting on the topic for discussions in preparation for the interviews. Colaizzi also recommends conducting a pilot study to validate the dimensions and if anything has been overlooked as a part of self-reflection. The
output from self-reflection and instrument validation through the pilot can provide insights needed for conducting the study. Other researchers promote group discussions, events, or seminars to prepare for the study (Spiegelberg, 1975; Aanstoos, 1986). For this study, the first four interviews formed the basis for refinement of the guidebook.

3.4.3. Managing Researcher Bias

One of the critical challenges of any research, especially phenomenological where the researcher is the instrument, is the validity of the data, inherent researcher bias, and influence on interpretation. The concept of validity is pivoted around the well-grounded insights and supported where the researcher and the research community or practitioners have confidence in the research. Poggenpoel and Myburg (2003) say that “the researcher as an instrument can also be Achilles heel in an educational research project” (p. 418). The authors note that in case the topic is close to the researcher, the ability to bracket (reduction) and drive an unbiased meaning is challenged. The authors highlight three key areas that the researcher needs to focus on for a phenomenological study - credibility, dependability, and confirmability. To manage against any bias, the research was based on all three elements through member checking (ensuring members agree with the transcript), mix of known (only four VCs were known) and random segments (familiarity bias) and code-recode process, where the interviews were coded and then validated after 4 weeks (Chilisa & Preece, 2005), and trial of evidence (analysis being reflective of the phenomenological evidence). The validity
of qualitative research stems from researchers persuading the readers to
acknowledge that the transformation of raw data into a structured explanation of the
phenomenon is embedded in respondent response only and not influenced or
misrepresented. The reader must also follow a logical progression or thought
process from setting up the study, collecting data, creating quantifiable units, and
interpreting units into narratives that interpret the phenomenon (Polkinghorne, 1989). There are five guiding principles that this research followed:

a) Ensuring that the researcher was not influencing the responses' content, description, or meaning (Mishler, 1986). The researcher only guided the study and did not actively or subconsciously influence any responses. The intent was to capture the individual experience without any prejudice or influence.

b) The response transcription is accurate and validated by the respondent. The researcher shared the transcript with the respondent to seek validation.

c) Since the interview was done in phases, the analysis allowed the researcher to go back to the initial interviews to gather more insights and incorporate those in subsequent interviews ensuring that any derived conclusions were validated. However, during this stage, there were some implicit interpretations based on researchers’ tacit understanding of the phenomenon, which are highlighted in the analysis.
d) The focus of the interviews was to gather information about the VCs experience, and the researcher had to guide the conversation from structural and general response to VCs experience.

e) Finally, the insights were captured for applicability to broader experience in other situations.

3.4.4. Site / Contextual Approach

The interviews were conducted with India-based VCs primarily from a convenience sampling perspective. In developing countries like India, the ownership structure for entrepreneurs has been traditionally dominated by insider funding, either through family or debt financing from network (from friends and family) or angel investors (Mukhopadhya & Chakroborty, 2017). Only recently has there been a significant increase in funding by formal institutional channels, including VC firms, both India-based and international managing large portfolios in emerging markets like India. As a result, the Indian market has seen a tremendous move towards structured financing options in the last decade. Recent data from the Securities and Exchange Bureau of India (SEBI) has noted a significant increase in the number of local VCs and Foreign VCs (FCVs) in the Indian markets (Sahelirc, 2021). The interviews were conducted with India-based VCs, who provide early stage or seed funding. Although there was no screening based on industry focus, there was a prevalent focus on technology. The instrument was designed to capture the sector, if the VCs have one.
3.5. Data Analysis

The first step of data analysis is transcribing the interviews verbatim (Poland, 2002). Research epistemology states that understanding the phenomenon requires defining the participants and their social interactions, perception of the lived experience, and prior concepts that influence the phenomenon (Kuhn, 1996). As critical is conducting the research the right way and capturing experiences, the ability to derive purposeful meaning, and protocols across naïve descriptions requires identifying patterns during analysis (Polkinghorne, 1989). Qualitative data analysis is typically considered arduous, requiring keen understanding, and having no shortcuts (Basit, 2003; Delamont, 1992). Researchers rely on their knowledge and experience to identify data patterns, determine categories, examine meanings, and understand relationships (McCracken, 1988). Since qualitative research relies heavily on interpretation and knowledge of the phenomenon, the researcher plays a crucial part in driving meaning, looking at emerging themes, and linking categories to create theories (Singh & Richards, 2003).

3.5.1. Coding and Analysis

One of the critical aspects of developing insights from phenomenological research is the collection of various descriptions to identify patterns. For the current study, the analysis and subsequent coding of the data followed sequential steps to interpret the protocol. Polkinghorne (1989) builds upon Giorgi’s (1975b) steps of analyzing any single response, and these steps were used as a basis of data coding and analysis. Although Giorgi was greatly influenced by the seminal work of
Husserl, there are applications of interpretive analysis that support Heidegger’s viewpoint on the researcher being part of the instrument for research. As much as the researcher creates the platform for conducting interviews, the researcher is also critical in understanding the meanings of the narrative and developing insights.

The researcher thoroughly read the entire response from all respondents to get a comprehensive picture and sense of the narrative. Since the interviews were free flowing the responses do not follow a logical sequence of questions, and there are insights that are relevant to the questions but were embedded during the latter part of the narrative. Moustakas (1994) says that the researcher must give equal weightage to each aspect of the interview, as a starting point. Secondly, the response transcript was divided into blocks that describe the phenomenon. This process required the institutional knowledge and insights from the researcher to develop the meaning of naïve narratives and abstract terms without any inherent bias. The analysis then navigates through all the responses to capture all variations of the responses that add to the phenomenon description (Kvale, 1999).

The third step was to delineate various response units into simple language that dominates the meaning of the response. Giorgi (1979) claims that this step allows for capturing explicit definition of the implicit meaning. Fourthly, the analysis included developing themes from each unit or block identified in the response. The coding included culling out specific meanings related to the research question to describe the phenomenon. Fifthly, once the themes were developed, the researchers tied them back to a comprehensive narrative to answer the research
question. This step of connecting the themes also creates a structural description of the phenomenon. Lastly, the analysis created a narrative around the phenomenon once the themes were tied together to create the structural characterization. These individual interviews were then stitched together to create a comprehensive insight into the phenomenon.

3.5.1.1. Coding Methodology

Saldana (2021, p. 12) says that the “majority of qualitative researchers will code their data both during and after collection as an analytics tactics, for coding is analysis.” Coding is typically considered an iterative exercise that gets refined with each complete response and the researcher’s interpretation. Saldana (2021) highlights that researcher will normally go through multiple cycles before presenting the data as insights. Since these were lengthy interview, the some of the information was not part of the research questions or objectives, but those were still considered to see if they had an bearing on the responses (Richards & Morse, 2013; Atkinson, 2015). The coding for the research was manual, using responses and response categories to create critical code frames. Initially word cloud software was used to identify keywords under each of the blocks of questions, but those were scattered and did not provide much relevance on longer responses or word categories. The word cloud was used minimally. Basit (2003) leaves the choice of manual versus electronic coding to the researcher based on time, number of responses and budget. Saldana (2021) recommends that manual coding exercise be better done through printed responses and marking out the codes on paper before
creating an electronic version. The responses were all printed out and prominent words, themes and responses were manually entered into a file. This exercise was done at end of each batch of four interviews and then refined as necessary.

In terms of the methodology, the research leveraged structural coding approach for question-based coding. According to Saldana (2021), structure-based coding is most appropriate for qualitative research with multiple respondents, semi-structured data gathering techniques, and exploratory investigation. According to MacQueen et al. (2008), structured coding yields large data sets that form the basis for in-depth analysis of the responses. Based on some of the seminal work by Kaam (1969), Girogi (1975), Colaizzi (1978), and Polkinghorne, 1989), there are six distinct steps of conducting data analysis. This research closely followed the approach to create code frames and conduct coding. The first step involved the classification of data into categories using different narrative points from the respondents. Once these were classified, the second step was to convert the narrative into descriptive terms based on researcher’s background to create descriptors. The codes needed to reflect the meaning of the naïve statements and interpretation. The codes then eliminated any noise by removing statements based on a specific incident, rather than experience or general statements read by the respondent rather than felt. The codes need to reflect the first description of the experience.
3.6. Validity

The concept of validity in a phenomenological study is used to ensure rigor in the study and subsequent analysis. Validity is based on unimpeachable methodology and the ability to logically follow the approach with all the research disciplines to create worthy knowledge and be pivoted around the epistemology (Guba and Lincoln, 1982; Glesne, 2006).

The interviews were conducted to capture responses from a series of broad iterative questions from the interview guide (Appendix B). Considering the researcher has a background being an entrepreneur, particular focus was on ensuring there is no bias.

3.6.1. Ethics and Reciprocity

One of the critical areas that enable research validity and trust by researchers is following ethical practices and considerations. Since phenomenological research encourages the respondents to share their experiences within the situation, there is information and insights shared by the respondents that are confidential and sensitive in nature. Failing to protect such information can lead to credibility and reputation risk for the research fraternity. From a reciprocity perspective, no financial incentives or other monetary benefits were provided to the respondents. However, a copy of the final dissertation paper was committed to the respondents to share aggregate-level findings stemming from the gathered knowledge and researcher perspective (Lincoln, 1995).
3.6.2. Verification

Of the various potential threats to conclusion and validation of data techniques like long term involvement, data triangulation, respondent validation, intervention, and data comparison (Campbell, 1988), the study used respondent validation since there is sparse longitudinal data, or ability to triangulate with other secondary research or financial data. Lincoln and Guba (1985) refer to respondent validation as a check to solicit input from the interviewees to rule out the possibility of misrepresentation.

3.6.3. Generalization

Generalization has been a debatable issue for qualitative researchers. Researchers have usually examined the concept of generalization (over transferability) as either statistical generalization through quantitative research or analytical generalization through qualitative or mixed-method studies. However, Lincoln and Guba (1985) argue that there is no generalization, and each phenomenon borrows from various studies. Lincoln and Guba put the onus on using the outcome from studies on subsequent researchers to transfer those findings to new research – build on the existing literature. Some researchers believe that understanding a phenomenon is a complex, interactive, iterative, and dynamic process that is grounded in a practical approach and does not lend itself to being replicated (Smith et al., 2009), so there is no need for generalization.
Chapter 4 – Findings

Signaling theory continues to be one of the most prominent theories in the last decade around mitigation for information gaps. In the absence of data, early-stage investments are premeditated around factors that are captured and interpreted by VCs as having higher probability of venture success, and hence lower risks. The signaler (entrepreneurs and founding teams) will consider signals that they believe will allow the receivers (early-stage VCs) to evaluate their venture positively and allocate resources.

Early-stage VCs explore and fund markets without well-defined market conditions or boundaries and rely on their prudence and judgment to pick investments they believe will succeed. These early-stage VCs often look to invest in disruptive businesses that have the potential to upend traditional markets and create new ones and typically leverage innovative technologies or business models to create unique value propositions that set them apart. However, VCs also understand that investing in disruptive businesses carries risk, albeit with potential for significant returns if the business is successful. Early funds provide funding and expertise to help entrepreneurs grow and navigate the challenges of scaling up (Croce et al., 2016). This study examines idiosyncratic investment risk at the earliest stage of investment, a stage that is devoid of data typically available for late-stage investments.

Risk and rewards play a key role in their investment thesis. From an academic perspective, the explanation of how VCs fund start-ups has ranged from
VCs betting on the market and financial data (Gompers et al., 2020) to product differentiation and competitive advantage and market adoption (Aldrich, 1999; Zacharakis & Meyer, 1998) to entrepreneurial skills and their pedigree (Petty & Gruber, 2008). However, most ignore that early-stage investments are devoid of many (or any) tangible metrics. It is even harder to explain why only a small number of investments succeed if there is a strong relationship between high-growth markets, differentiated products, and entrepreneurial abilities and the success of the entrepreneurial firm.

The recent slowdown in VC funding and growth of newer unicorns (companies with a valuation of more than $1b) continues to bring into focus the diligence and prudence of the newer investments and the focus on identifying sustainable growth ventures. A recent report by CB Insights highlights that although the Q3 2022 fundings remain high at $74.5 billion, it reflects a slowdown from previous quarters (CBI Insights, Q3 report, 2022). Across the various stages, early-stage investments (pre-Series A) form the largest share (66%) in terms of the number of deals, with Asia leading the geographies (39% of the deals). However, these are directional numbers since many deals at the seed capital stage are never reported, and the numbers reflect a survival bias.

4.1 Overview

According to extant literature, VCs investment thesis are influenced by a range of factors, which necessitates an understanding of how they mitigate risks and interpret signals that are perceived as leading indicators of success. This study
seeks to explore the methods by which early-stage VCs manage risks related to information asymmetry and navigate the inherent noise to make sound investment decisions. During the research, certain VCs acknowledged that they look for signals that aide them in making more informed decisions. However, VCs also stated that they discount some signals as noise and rely on their market knowledge and heuristic understanding of the venture's purpose. The efficacy of signals in mitigating information asymmetry depends on how VCs interpret them. In the absence of performance data, early-stage VCs recognize that some signals may be misleading, as entrepreneurs may manipulate them to secure funding.

Intuition is a phenomenon that has long been studied in the field of psychology, and its role in decision-making has been a topic of debate for many years. Intuition is the ability to make judgments and decisions based on non-analytical or non-conscious processes, such as instincts (Blume & Covin, 2011). In recent years, researchers have begun to explore the role of intuition in decision-making, particularly in high-stakes and complex environments such as entrepreneurship and business management. In the context of decision-making, intuition can be considered a mental shortcut or heuristic that enables individuals to make quick and effective decisions based on limited information (Dane & Pratt, 2007). Intuition can be particularly useful in situations with high uncertainty or ambiguity, as it allows individuals to make decisions based on patterns, experience, and expertise. However, there is also a risk of relying too heavily on intuition, leading to biased or irrational decision-making, including confirmation bias,
overconfidence, and anchoring, which can lead to poor decision-making. While intuition can be a useful tool in situations of uncertainty or ambiguity, it can also be influenced by biases and lead to poor decision-making.

4.2 Research Findings

The research examines early-stage VCs’ approach to managing their information asymmetry gaps or risks associated with investing in entrepreneurial firms in their earliest growth stage.

The study demonstrates that early-stage VCs employ several strategies to address information asymmetry risks. Specifically, these VCs manage their risks by (a) investing selectively in deals that have received third-party validation, (b) focusing exclusively on markets that they have thoroughly researched and understand, (c) relying on heuristics based on experience, and (d) using intuition to evaluate the entrepreneurial team’s vision, passion, and execution abilities. In addition to these risk mitigation approaches, early-stage VCs also prepare for active and collaborative support of portfolio companies post-funding (e).

The decision to extend finance to an entrepreneurial firm requires some unimpeachable logic that early-stage VCs must explain to the LP investors (Amit et al., 1998). Most VCs in the study follow a semi-formal and structured process of identifying and funding early-stage ventures. A significant part of the VCs in the study invested in India-based entrepreneurs or founding teams. Some had invested part of the fund in companies in Southeast Asia, and one invested in a silicon-valley company run by an Indian entrepreneur (Appendix C)
4.2.1. Overview - Mitigating for Information Asymmetry Risks

Bafera and Kleinert (2002) found that qualitative signals are accessible to all VCs. However, the interpretation of these signals and the subsequent investment decisions differs across VCs. The interception and interpretation of these signals are influenced by a range of factors, such as the VC's experience funding similar companies, the prioritization of signals, the strength of the signals, the contextual interpretation of those signals (in relation to their portfolio and investment thesis), and the relevance of the signals to their business models. In other words, VCs may interpret signals differently based on their unique experiences and investment strategies. One VC likened this phenomenon to the process of hiring candidates with similar backgrounds and capabilities, where only one is ultimately selected.

“You're in a job interview, what are you looking for? Right? You'll meet 50 chartered accountants for the same job. They're all chartered accountants for 10 years of experience, yet you hired one. I mean, depending on the space, depending on the caliber of his experience, depending on the caliber of his intellect and the conversation, his insights that he's able to bring into what the problem he's trying to solve, the demonstrated understanding of the nuances of that industry .... its subjective, right? If you like one candidate more than the other, it's not always data. Data is used to retrofit.”

Why does one VC accept market and product viability stimuli or signals while others decide to discount the same signal? The varying interpretations of market and product viability signals by VCs have been a subject of inquiry, with
Colombo (2021) noting the need for more information on the use and legitimacy of such signals. While earlier studies on signal interpretation have been conducted on investment as a heterogeneous activity, aligning signals to the decision process at the early stages of investment has proven challenging. In contrast, signal interpretation at later stages benefits from human capital and affiliated metrics that help reduce investment risks (Meoli & Vismara, 2019). However, according to Colombo (2021), the early stage of venture funding has been largely ignored in terms of signal interpretation despite the fluid nature of this stage and the limited availability of metrics. This may be attributed to a lack of data and the absence of signal attribution across funding stages.

New ventures will typically have high noise levels where it’s not just interpretation but figuring out what signals to interpret. Most VCs in the interview agree that there are signals that they pick up through their due diligence, but their interpretation differs. One VC interpreted industry association or entry into incubation programs as a signal of venture maturity, while another emphasized product adoption as a sign of acceptance (Bafera & Kleinert, 2002).

Prior research has juxtaposed signals with facts like market growth, IP, Product Definition, customer adoption, and firm balance sheet to reduce their investment risks. However, signals must be understood in the context of other signals at the early investment stage. Katz and Kahn (1978), while talking about “Equifinality,” say that “systems can reach the same final stated from different initial conditions and by a variety of different paths. Similarly, each signal can react
or be influenced by other signals that either support or contradict it. The level of risk varies in the absence of real data and material signals like financials.

“In PE the stakes are high, the risks are high, the rewards are high .. but it's highly manageable. But in VC, there are lots of blind spots, which you don't know, which makes it very difficult to manage risk there. For example, the market or the competition, the product or the service that they're talking about is, is yet to flourish. Right? So you don't know how it is going to turn out the market. Risk is heavy, financial risk is heavy.”

The research shows that early-stage VCs mitigate their investment decision risks by leaning on - What they Know (selectively sourcing deals, defining markets to invest, and homophily), What they Intuit (intuitive decision based on understanding the vision, passion, and execution abilities of the entrepreneur) and What they Control (collaboration and stake).

Philosophy researchers have evaluated the difference between knowing of self vs. others to says that there exists a ‘profound asymmetry between the way in which I know my own thoughts and the way in which I may know the thoughts of others’ (Boghossian, 1998, p. 151). In this case, asymmetry exists where understanding of one’s own thoughts is direct whereas understanding of the thoughts of others is indirect and based on influences (Cassam, 2017). VCs rely on both – what they clearly know and what their intuition says will succeed.

Researchers have examined the concepts of Belief and Knowledge as two distinct concepts that are often studied in the field of epistemology. Some of the
earlier philosophers like Chisholm (1966) have argued that knowledge and belief are on the same continuum and reflect the similar mental phenomenon. However, some of the newer academicians (Schilbach & Newen, 2017) have argued that knowledge and belief use different processing modes and reflect distinct processing. Knowledge comes from knowing and from experience and weaving together information through systematic relationships. Knowledge involves systematic structuring of information and ability to compare (Cassam, 2017).

Finally, the early-stage investors attempt to manage parts of the asymmetry by better managing their investments through agency constructs. Financial economists have long argued that strong corporate governance focused on managing risks associated with differences in drivers of the managers and shareholders in some cases (Bebchuk, et al., 2017). Origination of agency costs and model comes from a combination of economics and institutional theories. Academicians across Accounting (Ronen & Balachandran, 1995; Watts & Zimmerman 1983), Economics (Jensen & Meckling, 1976), Finance (Fama, 1980; Fama & Jensen, 1983, Fama, 2020), and Marketing (Bergen et al., 1992; Logan 2000) have leveraged the agency theory to create significant literature around ownership controls, governance models, transactions costs, owner-manager friction and drivers, debt-equity modeling, and social behaviors across these organizations.

Agency theorists in field of entrepreneurship have, however, argued that investors are typically driven by similar behavior and outcome as the entrepreneur of monetization and commercial success (Bendickson et al., 2016). Early-stage
investors manage their cognitive and agency costs under high uncertainty and probabilistic value creation through strategic advice and coaching, especially when founding teams are still unproven (Bendickson et al., 2016).

4.2.2. What The VCs Know

4.2.2.1. Deal Preference - Third Party Validation

Most early-stage VCs break down the selection process into distinct and linear phases. The VCs have already preselected industries they focus on and will limit their evaluation to these industries only. Only in rare cases have they ventured outside the defined industries. The pre-selected industries become the familiar ground, where they have inside information (reducing the liability of newness), networks, and connections that they would leverage to support the entrepreneur.

The starting point for all investment decisions is sourcing deals and opportunities. Since these entrepreneurs are small and often distributed, the VCs will typically have a research team or channels through which they identify these deals for evaluation. One VC indicated they evaluate about 100 deals monthly, and only fund about 1-2% of the deals.

“Actually, not even 1% conversion. Now that the number has gone up, we generally end up doing six companies a year, six investments. So that's half a percent or, or even less.”

Another mentioned that they have a dedicated team for scouting for such entrepreneurs through social and published media, angel investors, network forums, events, and university programs. The general rule of thumb seems to be that half of
the opportunities at their desk are proactive pitches by entrepreneurs and founding teams, while the rest are ones that they or their team run outreach.

Selective deal sourcing allows VCs to manage the information gaps by betting on others’ selection criteria (third-party validation). VCs will rely on incubators or accelerators to validate that the entrepreneur understands what is needed to commercialize the product. VCs will also lean on credible angel networks (vs. individual angel investors and family business) as a validation of the merit of the entrepreneurial firm. Most early-stage VCs indicate that they look for some confirmation on the investment. This confirmation or validation could be through the effort put in by other investors or through a circle of trust within their investee company networks. Structured incubator or accelerator programs and validated network connects are the two key channels for deal sourcing that allow early-stage investors to manage information gaps better.

a. Credible Accelerator / Incubator Programs and Angel Networks

2021 was a pivotal year in the growth of Indian startups, and incubator or accelerator programs played a prominent part in such development. The top five startups that went through accelerator programs raised about $10 billion in 2021 alone, creating a valuation of $26.1 billion (Singh, 2022). Past research has examined various types of accelerator programs, including corporate-funded programs (Becker & Gassmann, 2006), university-based programs (McAdam et al., 2016; Hassan, 2020), and private equity programs as incubators supporting entrepreneurs (Hochberg, 2015). Cohen et al. (2018) say accelerator or incubator
programs mitigate bounded rationality in new ventures. Entrepreneurs try to make the right decisions but are bound by imperfect information and are limited cognitively to gathering, interpreting, and processing new knowledge (Cohen et al., 2018). Accelerator programs act as a source of knowledge and a platform for entrepreneurs to learn from the experiences of others. These structured sponsors (like the accelerator programs) help create an ecosystem for entrepreneurs to learn from their peers. Research shows that accelerator programs provide legitimacy and greater survival rates for entrepreneurs (Armanios et al., 2017).

“We don’t come in at very very early seed stages because we think incubators can do a better job. And now incubators are coming up for this sector, which is good for us because we see ourselves as a next level. As these incubators throw out some good opportunities, we are there to evaluate them. So, in the last twelve to fifteen months, we’ve seen 94 such opportunities.”

During the interviews, early-stage VCs indicated that one of the most significant sources of funding programs for them and India-based VCs is the incubator programs set up by various universities, corporations, and private equity organizations.

“About 20 would've come through ecosystem partners, a venture builder, an incubator, other people working with these at very early seat stage or angels who have invested and then want to see some exits coming through.”

Most Incubator programs provide the initial platform for entrepreneurs to ideate on the venture idea or fine-tune their minimum viable product (MVP).
Accelerators will typically support the initial stage of product development and provide funds and expertise to help entrepreneurs and their ventures create a market-acceptable product and define their markets. Two of the most prominent ones that act as fodder for growth and allow early-stage investors to identify deals are Action for India (AFI), which supports social entrepreneurs, and India Angel Network, which supports early-stage entrepreneurs. Similarly, Angel investors come from organized and unorganized sectors. Murthy & Sekhar (2020) categorize angel investors in three categories – organized networks (institutions and corporations), High Net-worth Individuals (HNIs), and finally, friends and family. Most respondents during the interview mentioned using credible accelerator programs and angel investors as a source of identifying investment opportunities. Most VCs, although wary about smaller infrastructure providers acting as incubators, were engaged with larger and credible incubators as a source of opportunities.

b. Existing Network

VCs also tend to tap into their existing network of connections, alumni network, investee companies, and “shark tank” like events that create a platform for VC and founder engagement. Early-stage investors find the network channel the most efficient as it ensures the alignment of the types of companies the VCs invest in and the founders. Early-stage VCs primarily look at three channels: their networks (peers and investee companies), premier institutions, and industry events.
“Founder understands us well. They understand our culture, how we operate, and therefore there is a high degree of qualification criteria that these founders have brought to the table ….. without us having been in the picture where some qualification has already happened.”

Early-stage VCs also indicated they frequently network with premier engineering and management institutions like the Indian Institute of Technology (IIT) and the Indian Institute of Management (IIMs). Entrepreneurs or enterprise ideas are often recommended by professors or investee company founders in their network who are alums of these premier institutions. Plummer, Allison, and Connelly (2015) suggest that early-stage ventures associated with incubator programs or being part of premier institutions positively influence signal interpretation by the VCs.

“I think a tremendous amount of our early-stage leads come from founders recommending other founders from the ecosystem or people from within their community who are starting up…. obviously Indian founders or Southeast Asian founders are looking for international investors to come on board. Cause then they bring a diversity of experience, cross-border learnings, good global investors, that kind of network.”

Finally, early-stage VCs will also work with other VCs as a “syndicate”. There are networks of small or micro-VCs that invest half a million dollars and look for other partners or other similar micro-VCs to approach them if funding requirements are higher. VCs indicated in some of the deep tech companies, the
investment requirements may be higher than their thresholds and distributing risks through syndication works.

“Rather than go alone, we like to syndicate, we like to go with somebody, piggyback on somebody else who's all already investing. That's, a risk mitigation standpoint from a VC standpoint.”

**4.2.2.2. Heuristic Decisioning**

Most early-stage VCs mitigate the risks of investing in entrepreneurial ventures by leaning on familiarity and homophily. All the VCs in the study had shortlisted industries to invest in based on (a) experience and expertise of the entrepreneur and founding teams, and (b) their own learnings over the last few years.

“So, can the founder really execute.... we look at the founder's past entrepreneurial experience. Have they done successful ventures, or even unsuccessful ventures, right? Even failures teach you a lot, right? What were their learnings, what did they take away from that?”

Experienced entrepreneurs or managers from large corporations are perceived to bring valuable skills and knowledge to the venture, such as industry knowledge, leadership abilities, and the ability to manage teams effectively. These attributes are especially important in the early stages of the venture, where the founding team has limited resources and needs to prioritize burn-rates against scale. However, experienced entrepreneurs and managers may also come with higher expectations and demands, such as higher valuations, which may not always align
with the VCs’ investment thresholds. Overall, experience is one of the many attributes that VCs consider when evaluating potential investments.

“We look for leadership roles in a startup or in a large corporate as well ... because they are in a way, managing teams, managing people, and also you are innovating at some level”

Most VCs mentioned that India does not yet have a mature Mergers and Acquisitions (M&A) market. The exit for these early-stage VCs in the initial stages is typically through a subsequent fund rather than being acquired. Because of these market dynamics, investing focuses on creating a scaled venture that is attractive and highly valued by large PE funds.

“Like we have a partner who typically came from a public markets background in the US or the Goldman Sachs for a while understands what it takes for, you know, growth stage companies to go public.”

Some VCs also bring experience as an entrepreneur and understand the process and passion needed for success. These VCs with entrepreneurial backgrounds will leverage their experience on success and failure to identify pitfalls and challenges, but more importantly, be able to identify their bets.

“And my background being that I've worked for small startups, failed startups, midsize companies, you know, large tech companies, straddling across sales, marketing, business development, relationship partnerships.”

One of the drawbacks on relying on heuristics or decisions based on experience relates to both the Dunning-Kruger effect, which states that people over
or underestimate their competence during decision making due to lack of metacognitive skills and self-awareness (Muller et al., 2021). Additionally, researchers caution on the tendency to rely too heavily on one's experiences when making decisions or evaluating new information, without considering its relevance or reliability (Brehmer & Hagafors, 2016). Both the Dunning-Kruger effect and experience bias can lead to poor decision-making and should be considered when evaluating decision-making processes.

4.2.2.3. Pre-defined Markets / Sectors

Although the focus of investment for most of the VCs in the study was technology-enabled disruptors, there was a clear focus on what specific areas the VCs had shortlisted.

One VC had not ventured out of FinTech, AgriTech, HealthTech, or EcommTech industries in the last three years. There was a clear indicator of value that they believed these industries would generate in the next 5-10 years.

“It is a TAM (Total Addressable Market), which we understand, having made investments in that space from a completely different point of view. So we understood that target market, we understood the pain points of it.”

Early-stage VCs will keep the medium-term horizon in mind since their exit will eventually be to late-stage funds (Series B or C), or they will co-invest with other funds. The valuation and strength of their predefined markets need to sustain over the 5–10-year period to exit. Another VC had identified sectors within the circular economy in India that they believe will see growth in the future.
“So (COMPANY NAME) is India's first fund for a sunrise sector, India's creative, cultural, and circular economy. So, what we define as the creative, cultural, and circular economy are art, Indian arts, and craft, interior design, decor, and ethical fashion. I mean, if you just take a step back into just look at the impact ecosystem, impact funding per se as an ecosystem, that itself is quite nascent in India, but it's making progress.”

Another VC has taken a more horizontal approach to developing its investment thesis. They invest in companies disrupting the “supply chain,” mobilizing resources to support the “future of work” and moving traditional engagements to “platforms.” This VC has created three distinct Centers of Excellence (CoEs) within their firm that identify companies to invest. These CoEs are responsible for helping drive the investee company strategy and product development. The heads of each CoEs are specialists, experienced, and networked in their specific areas. Another VC categorically ruled out industries that they had no experience or did not understand, even if the opportunity was exciting.

“We looked at a space tech company and we have no clue of what the satellite market looks like. And you know, it’s fascinating founder and very, very exciting deal. But we said no, because we had no clue. We said, if there is a problem, we won’t even know where to start helping.”

Once the VCs determine that the deal aligns with the pre-selected market, they will evaluate the venture idea on multiple parameters defined as a part of their checklist or tacit knowledge gained from experience. The three key themes around
which VCs pivot while evaluating venture ideas include problem clarity (is the problem defined and worth solving), contribution to portfolio companies (will it enhance or leverage existing ecosystem), and sustained attractiveness at exit (will it be viable and sellable to the subsequent acquirer). One VC firm focuses primarily on the entrepreneur’s ability to operationalize the venture idea and the iterative nature of the product.

**4.2.3. What The VCs Intuit**

“So that was a leap of faith, but we took that leap of faith, basically because we said .... okay these guys have analyzed it really well. And we liked the guys.”

**4.2.3.1. Intuitive Decisioning**

Intuitions are “Judgements that arise through rapid non-conscious and holistic associations” (Dane, Pratt 2007, p.40). Researchers believed that “intuitions” are helpful whilst finding signals in ambiguous and unclear circumstances. VCs presented with the same data and information, will make different decisions on funding. Considering that these early-stage VCs go through numerous deals and opportunities there are factors that play a significant role in pursuing some opportunities to diligence, while staying away from others. The VCs in this study clearly state that they fund less than 2-3% of all the deals that lands at their desk (some say it’s 1-2%).

The first screening level is typically based on data, but VCs indicate that they use their judgment and knowledge to evaluate the venture further.
“We do not know, because there is no precedence to this .... based on our sector knowledge, our consumer background knowledge, we will give it a reasonable chance that it will succeed”

Early-stage VCs indicate that they use their experience and some form of intuition to understand inherent risks. Three key factors came up in the study for managing information gaps (a) a complete understanding of the entrepreneur or founding teams’ vision (their thinking of markets, products, and customers), (b) their passion for the entrepreneurial process (different from a passion for the product) and (c) their ability to execute on the vision and the resilience for the process.

“So, you know, once checked off the problem statement, the size of the market and few of the other things, then there is something about the solution that is kind of ticks, right? So there's some kind of a trajectory that's happening. And you know your understanding, because you don't have too much data, it's difficult to figure out the trajectory, but you could see something, right?”

Researchers believe that intuition originates beyond conscious thought, includes some holistic patterns, and results in judgments based on emotions (Dane & Pratt, 2007). Researchers like Agor (1990) say that intuition usually comes into play in conditions of uncertainty, lack of precedence across emerging trends, limited information, and several alternative solutions. Blume and Covin (2011) have examined decision-making from an entrepreneur’s perspective and concluded that entrepreneurial decisions are based on some combination of formal analysis
and intuitive judgment. Researchers in psychology have examined intuition both as a process and outcome. In the current study, intuition is influenced by understanding the entrepreneur’s vision and the second-party perspective (entrepreneur) of the venture’s feasibility.

a. Understanding Entrepreneur’s Vision

The research shows that VCs rely on the entrepreneur’s vision of the business and the reason and rationale for the venture. VCs are also systematically subject to cognitive confirmation bias, where they over-emphasize information consistent with their experience and beliefs. In those circumstances, the VCs will typically look at the actions of entrepreneurs to validate those beliefs.

“The founder knows more than me all the time”

VCs, by themselves, resemble an entrepreneur. The entrepreneur manages against information asymmetry through agility and the ability to sense changes in the market. VCs do the same – they mitigate information asymmetry by aligning opportunity with how an entrepreneur visualizes the opportunity.

“Give them a chance to present those data sets, which are important for us to decide. And how they present and how they give us that entirety. At the end of the day, whether we like it or not, you keep aside the data, and the ability of the founder to build a story out of it (the data) and keep us excited is the key thing, right?

VCs also indicated that they understand and can differentiate opportunity from a short-term event. Covid-19 changed the work environments, with some
more permanent changes than others. One VC indicated they did not jump into the online education and Edtech bandwagon since they realized it was an event, not a long-term opportunity. Past literature has differed between opportunity and event as a one-time versus longer-term phenomenon. According to the literature on the appraisal of events (Lazarus, 1991), entrepreneurs’ approach and response to events depend on the events’ significance and ability to cope with the event itself. However, competence to identify and seize opportunities relates to “recognizing and developing market opportunities through various means” (Man et al., 2002 p. 132). VCs clearly understand the market dynamics and what is required to mitigate some of the agency risks by investing where they believe in the entrepreneurial vision.

“And even if they built the biggest technology, but if they (founders) can’t convert it into a business and they're unable to build that vision out and convey it, then it'll not scale. And at this stage, that becomes very critical. Humans are humans – the psychology of building a business, whether you say it or not, whether you put it down in process or not, I think every investor is trying to gauge that person. When the shit hits the roof, is this founder going to build or, you know, say, boss, here’s your money. I can’t do this anymore.

b. The Passion for the Entrepreneurial Process

Researchers have explored the concept of passion in a both positive and negative light. Vallerand (2010) examined the idea of obsessive versus harmonious passion and its association with different outcomes and interpretive processes.
While harmonious passion comes from an independent interpretation and internalization of activities leading to engaging in activities a person enjoys, obsessive passion is a more uncontrolled set of activities towards engaging in activities a person wants. Researchers have linked the dual passion theory to intrapersonal and interpersonal consequences of obsessive and harmonious passion, especially as it deals with performance outcomes for entrepreneurs.

“So, you would look at the quality of the founders that you want to back, like the level of hunger, passion, they have - it all seems like text-bookish, but you know, you can sense it, you can see it. So, you know, you tend to develop those signals mostly from your conversations with those founders or feedback about those founders from other co-investors and other people in the ecosystem.”

Bierly et al. (2000) say that passion can boost creativity in problem-solving, while Cardon & Kirk (2015) argue that harmonious passion leads to persistence in the entrepreneurial decision-making process and the ability to seize opportunities. Other researchers have highlighted the positive effect of passion on venture growth (Baum & Locke, 2004), and the ability to drive innovation (Kiani et al., 2020).

Traditional theories of entrepreneurship (Bygrave & Hofer, 1991; Ropo & Hunt, 1995) explain the entrepreneurial process as an iterative set of activities that creates valuation. The researchers define the process as opportunity recognition, exploiting the opportunity, and create value. Early-stage VCs are looking for a path toward value creation. The VC predefined markets aid in identifying the opportunity areas; the entrepreneurial vision helps understand how the
entrepreneurs and founding team members will exploit such opportunities, and the VCs will then evaluate for value creation as a part of the process.

“You put your life's energy in it, but you don't have that commercial spine in you to say, how am I going to make money out of it? ..... And their love for the craft is a big watch out for us. If they don't do this for personal gain, we need to see a clear personal ambition.”

Some of the seminal work by Shane and Venkatraman (2000) defines the entrepreneurial process as discovering and exploiting opportunities. The authors say there is an asymmetry of belief in opportunity identification. Similar market conditions are not obvious opportunity areas for all. Most VCs in the study rely on the entrepreneur to explain the entrepreneurial process “they believe in.”

According to the study, VCs seek entrepreneurs passionate about the process. The entrepreneur's ability to comprehend the market, regulatory conditions, competitive differentiation, growth strategy, and capacity to monetize the market's potential are evaluated by VCs. Early-stage VCs emphasize that an entrepreneur's drive to monetize the firm is critical, distinguishing passion for the "product offering" from a passion for the "entrepreneurial process." VCs acknowledge that the product may require multiple iterations to become commercially viable. The study reveals that VCs consider product adoption or acceptance in the market, with a general rule of 2-3 initial customers in a B2B setting and a thousand in a B2C environment. Post-adoption changes and pivots are normal parts of the growth process.
“So, this product is not out in the market. Now we make adjustments, the founder will make adjustments, do all that kind of stuff, but at least you know that some work has been done, or, you know, the founder has created some kind of an MVP product or a product outline, and then they've got validation from let's say experts from that industry.”

Early-stage VCs clearly state that the entrepreneur and the founding teams needed a path and passion toward making the venture commercially viable. One VC that does work in the Indian handicraft supporting circular economy was clear that they are in the funding business to make money for their investors. Social impact is a part of their investment thesis, but eventually, they look for entrepreneurs who can lead a venture to create commercial viability and valuation for their investors.

c. Execution Abilities

The value of the investment depends on the entrepreneur firm’s ability to create and sustain further valuation that allows the initial investment through pre-seed or seed capital to create returns for the VCs. Most VCs indicated that the past view of finding unicorns and companies and entrepreneurs that hack growth and create significant valuation quickly might be just that – unicorns that are difficult to predict and risky. Early-stage funds invest in the earliest part of the venture with high unknowns, lack of significant customer adoption, and unpredictable revenue run rate. Finding potential unicorns at this stage is a roll of the dice. VCs clearly looked for the ability of the founding team to bring their strengths and capabilities
together to build a large business. One VC went to the extend of saying that the biggest risk to the venture is the founding teams working together towards a common goal.

“Because the end conclusion is that for this segment that we are in Middle India segment, has to cater to a 100 million customers, not two, not 2000, not 10,000, not 2 million, but 200 million. So how do you build a business that will fit in for that? The kind of thinking you need to demonstrate is quite unique ….if the first phase of the business is high growth, high customer acquisition from the product, then it shouldn't lose money with every new customer.”

If the product is technology intensive (most VCs are investing in technology-enabled areas and platforms), VCs need to see a strong technology person in the founding team and with a significant share in the company. One VC said that if they find a founding team in a deep tech area where the technology person is either part-time or has an insignificant share, they consider that a red flag. Similarly, if they are investing in a HealthTech company, someone in the founding team needs to understand the policy and regulatory requirements of the healthcare industry. Most VCs look at the balance of the founding team across functions like operations and marketing. Functional areas like finance and people management can be added as the venture grows, but VCs will look at the founding team to bring execution capability. One VC indicated that “we provide the ability to run, not legs to run.”
“And those founders have done tremendously well because they can hustle and put things together. So you have to look at this from a balanced perspective. You don't over-pivot on one. You look like founders who can deliver and just make that happen.”

d. Camels and Zebras

Post Covid-19, the outlook for most VCs has changed towards a greater focus on adaptability and sustainability. VCs are also clear that finding growth hackers or hyper-scalers is a lower probability, and rather than chase potential unicorns, early-stage VCs are looking for Camels and Zebras. Zebras are both white and black companies – creating profits while making a social impact (Brandel et al. 2018), while Camels are long-run enterprises that create sustainable growth (Lazarow, 2020). Lazarow (2020) says that camels learn how to survive through crisis, and they do that with balanced growth, long term outlook and are diversified in their business models. Early-stage VCs in the study indicate they look for companies that can create ambidexterity or resilience in their business model. Gobble (2018) says that zebra companies are difficult to build, but they have “peerless stamina and capital efficiency” and are more likely to last and create real value for their investors (Brandel et al., 2018).

“The first thing we are looking for is resilient and gritty entrepreneurs. Because this is something we don’t expect (exits) to happen in four or five years, we expect an exit in 10 years ... a few might still exit in four years, but some, I'm talking about an extreme case, could be eight or nine years. So looking for
somebody who's in it for the long run and who's kind of looking at creating that value from the promoter or the entrepreneur capability, the leadership ability, I think, is an important one.”

The ability of the entrepreneur to identify adjacent markets shows a greater understanding of their business model in case of adversity. There is a greater emphasis on such attributes than purely on the merit of the product and with an understanding that the product features and differentiation will pivot as the market and the product develop. Traditional market size and growth rate metrics are not applicable to this disruptive industry trend.

“In the truest sense, digitization is sweeping the country, right? So, investors today are investing in tech-enabled businesses. The founder's ability to understand the tech adoption of digitalization from 2022 to the next ten years is very critical. Are the founders thinking of the landscape over the next ten years in India? A week ago, the government announced digital currency, right? They (founders) need to help us understand how they envision the entire building blocks. And that piece will be very, very important.”

4.2.4. What The VCs Control

Finally, early-stage protect their investment through participation in the venture decisions, especially around resource allocation (capital), hiring senior resources, and sometimes supporting the founding team in entering new markets and fostering partnerships.
4.2.4.1. Post Funding Support - Mitigating for Liability of Newness

All VCs, part of the study, support their investment through semi-active interventions. Considering that these are early-stage investments where the venture is still putting together building blocks, the early-stage VCs act as a growth catalyst. The two mentioned areas of intervention or guidance are (a) support in the venture’s go-to-market and (b) helping in resource allocation strategy (capital and human resources). From a go-to-market perspective, VCs use their network to help portfolio companies access local and global markets. Based on the network or prior experience in large multinationals, VCs' international connections can be leveraged to support the entrepreneur in entering newer markets. VCs also leverage their connections to mitigate the liability of newness and establish credibility in the market through such networks.

Yang and Aldrich (2017) argue that there is a much higher risk of failure at early-stage ventures due to the significantly higher liability of newness surrounding resourcing models, operational routines, and maintaining boundaries. The authors argue that there are limited foundational conditions or mitigants that lower risks of new venture newness. The study finds that VCs investing in early-stage ventures try to mitigate “newness” risks by bringing their learnings to establish operational and financial routines, learning from peer group portfolio companies, and credibility for the go-to-market.

The other area where VCs support investee companies relate to creating abilities based on a resource-based view. Entrepreneurs with no foreign market
experience struggle with the ability to either sell to or create any operational capabilities in a foreign country. Attracting talent (especially sales) and operational presence has significant cost implications (from the cheaper emerging market like India to mature markets like the US). The costs of mistakes can quickly evaporate funds without yielding results. Attracting (and retaining) the right talent, especially for small India-based entrepreneurs, is a challenge. Entrepreneur relies on a foreign salesperson to open their networks to create any sales engagements. Most VCs in the interview group had some connection to international markets – either through their work experience or through limited partners associated with the funds. This network connection allowed them to attract talent that the founding team could not have attracted on their own.

The VC community realizes this and has implemented measures that enhance the ventures’ ability to succeed. One VC firm encourages active collaboration among the founders to seek synergies. Periodic sessions encourage entrepreneurs from founding companies to discuss and share their best practices. The VCs in the study also considers various success factors, with some indicating that they realize that only 10-20% of their investments will succeed within a specific timeframe. Some exits will take much longer than the expected 6-7 years, while others will wind down, with VCs stopping further investments or subsequent funding for the venture.

“So debt funding is not yet kind of feasible and viable. So sometimes we jump into doing complete venture building for our investee company, including
figuring out how to raise debt and at what stage and planning the cash flows. So, we do a lot of work with some of our investee companies, working with them on the business plan, international expansion, marketing, hiring, technology stack improvements, and governance because governance is weak.”

**4.2.4.2. Funding Decision**

The final influence on risk appetite for the early-stage VCs in the study came from two key areas (a) valuation / commercial construct (will the investment provide returns) and (b) coachability and alignment (will they work well with our portfolio companies and us). The early-stage VCs will define expected returns for their investors through a portfolio approach, balancing risks with rewards. The VCs will exit in a defined period and must ensure that the venture stays attractive for subsequent investors. Most of the VCs in the study will acquire a 10-15% stake in the company to make their investment and time worthwhile while also ensuring that the entrepreneurs have enough stake (rewards) to drive performance or bring in additional leadership teams.

‘So, there's an opportunity cost for us, right? It sounds like a great deal, but we will not have many chances to add value. So you would balance those two out and say, Okay, fine, maybe I don't want to be on this deal because the ownership is not going to be very significant, while there is a good founder fit and a good culture fit with this other company where I'm getting this company at a reasonable price valuation and getting it at a level of ownership that we will be motivated enough to contribute to for the long.”
The second criterion post-evaluation is the personal connection with the founding teams – can they work together, or will they always be at loggerheads? Some of the issues these early-stage VCs mentioned are “is the entrepreneur coachable,” “are they too rigid in views and unable to work with the VC team”? For example, one of the VC companies had built a community of founders across all their global investments and created a platform for them to network with each other. Every year, they get all the founders across all investee companies to network, share best practices, and explore the “human” side of being an entrepreneur. The company provides them with professional and personal coaching and has been actively involved in their development. This VC believes that one of the reasons founding teams stop innovating is the burnout of running a firm with limited resources. Working with them to create the right environment, coaching them during the journey, and providing them guidance go a long way in the long-term sustenance of the firm. For them, the personal connection with the founding team is extremely critical to invest.

“No, actually, it comes down to the chemistry with the founder. It boils down to understanding the founder so much more that you say, oh, is this somebody who we can trust to build value with integrity? So, in one case we had, many walls were being built to obfuscate information rather than provide more clarity.”

4.3. Synthesis and Summary of Data

In an uncertain environment, risks, rewards, possibilities, and payoffs are closely related, so high payoffs arise with low probabilities. Without actual
performance data (available for late-stage investors), early-stage VCs weigh in their risks based on what they know, what their intuition says and eventually control against agency risks. These broad-level concepts encompass a series of heuristically defined approaches that these early-stage VCs use to manage investment risks associated with information asymmetry. The VC’s decision without hard data is influenced by what they know, intuit, and can control.

“We don't have a very clear idea about where or what it'll be, but we have something to work with”. “Excel is a gentleman; you can use it to project any number”

The VCs in the study seem to have done their study to create a credible flow of deals recommended by their networks or through incubators, defined markets they wanted to play in, and leveraged their entrepreneurial or industry background to navigate their decisions. VCs believe that a mature idea that comes through a credible incubator program acts as a first level of filter and allows them to evaluate well-thought-through deals. Similarly, deals that land at their desk through formal angel networks will provide credibility. VCs also hedge their information gaps through homophily across either the markets or the entrepreneur processes. Most VC firms have vertical expertise, and some have even created CoEs that continue to monitor specific markets and, within those markets, identify entrepreneurs. The early-stage VCs will look for entrepreneurs who have been entrepreneurs in the past or have managed teams in large organizations. The belief is that this way, the early-stage VCs can mitigate the newness risks and contribute effectively.
Secondly, the VC relies on intuition-based decisions by understanding the entrepreneur’s vision on why the entrepreneur and founding team had identified and decided to seize the opportunity. VCs will meet and probe the team to see if the vision is clear and complete, including understanding the market and legal conditions, industry trends, competitive landscape, differentiation, and sustainability and scale of the markets. The VCs want to understand whether entrepreneurs can tell and hold the story. In addition, VCs indicate that finding Unicorns in the post-Covid environment and with their funding thresholds is tough. They have been looking for zebras (ambidextrous entrepreneurs and firms) and camels (who can survive and flourish over a long time.) As a result, the VCs look for a passion for the entrepreneurial process rather than just a passion for the product offerings. Some VCs indicate that the passion for the product offering sometimes hinders creating an agile and dynamic process that continues evolving the product. Within intuition-based decisioning, the VCs will also look for execution capabilities. One VC indicated that they quickly identified if the founding team for a platform company had “parachuted” a technology person to show a complete founding team vs. where the technologist had a significant stake in the company. These VCs realize that only a handful of their investee companies will exit profitably and take a portfolio approach to hedge for failures and successes.

Finally, the VCs continue to evaluate the venture based on where they can contribute post-investment. The VCs look for entrepreneurs that are culturally
aligned with them and are eager to learn and contribute to their portfolio companies. Most VCs in the interview look for a 10-15% stake in the company with an understanding that anything larger will impede the ability of the entrepreneur to dilute in subsequent funding and not be able to attract talent without equity stakes.
Figure 4: Mitigating Information Asymmetry by Early-Stage VCs

**Signal Interpretation**

- Selective Sourcing / Third Party Validation
  - Cohen et al. (2018); Armanios et al. (2017)

- Pre-defined Markets
  - Wustenhagen & Teppo (2006); Bygrave (1988)

- Heuristic Decisioning (Experience)
  - Giglenzer & Goldstein (2011); Newell et al., (2003)

**Signals**

- Select Accelerators / Incubators / Angel Networks
- From Existing Network / Syndication
- Selective Outreach
- Markets (VC Portfolio Generalization vs. Specialization)
- Entrepreneur Industry Expertise / Entrepreneurial Experience
- Iterative Effectuation
- Vision of the Entrepreneur / Founding Team
- Passion for the Entrepreneurial Process vs. Product Offering
- Ability to Execute
- Camels and Zebras (Sustained Valuation)
- Active Engagement / coachability
- Cultural Alignment

**What VCs Know**

- Schilbach & Newen, 2017; Cassam, 2017

**What VCs Intuit**

- McCann, 2017; Blume & Covin, 2011

**What VCs Control**

- Gompers, 1998; Cumming, 2008; Osabrugge, M., 2000

- Post Funding Engagement / Agency Construct
  - Yang and Aldrich (2017); Harrison & Mason, 2017; Bendickson et al., 2016
4.4. Contribution to Applied Practice

The paper discusses how early-stage venture capitalists (VCs) manage risks associated with information asymmetry in an uncertain environment. The study identifies five approaches early-stage VCs use to manage investment risks associated with information asymmetry: selective deal sourcing, pre-defined markets, intuition-based decisions, heuristics, and coachability and cooperation.

To contribute to applied practice, one could use the findings in the paper to guide early-stage VCs in managing investment risks associated with information asymmetry. For instance, early-stage VCs could be encouraged to selectively source investment opportunities using third-party validation to mitigate information gaps. They could also be advised to invest in pre-defined markets where they have the expertise and to rely on intuition-based decision-making, which considers the entrepreneur's vision, passion for the entrepreneurial process, and ability to execute the vision. Additionally, they could be advised to leverage their familiarity with industries to invest in the familiar and to engage in post-investment coaching and cooperation to help manage risks. By applying these approaches, early-stage VCs could manage risks associated with information asymmetry and increase the likelihood of successful investments.

Similarly, this study has a huge implication for entrepreneurs looking for their first source of formal funding. Aligning their vision, showcasing passion for the process and, more importantly, clearly understanding the process would help create a strong impression.
Chapter 5 – Discussions, Implication, and Recommendation

This chapter replays the objectives of the phenomenological study and highlights the main areas of contribution to the academic world. The chapter is divided into four sections (a) the overview of the finding and problem area, (b) how the study contributes to the field of information asymmetry and signaling in an entrepreneurial-VC environment, (c) highlights the implications of the study for the early-stage VCs and entrepreneurs and (d) recommendations for future studies.

5.1 Overview

Where success rates in entrepreneurial ventures stay extremely low, finding the right investment opportunity is a critical role of the partners who manage the fund. Cohen et al. (2019) argue that people are cognitively constrained by bounded rationality, don’t have all the knowledge, and do not always have complete or accurate mental maps to make informed decisions. Without any firm performance data, early-stage VCs are often challenged with creating directional mental maps as they make investment decisions. Most of the studies that have looked at this aspect have ignored the investment stage or risk management on the continuum of information. Traditional models of managing information asymmetry by VCs have also either looked at a single set of factors or a combination of factors that contribute to deciding on funding the entrepreneur. For example, studies examining entrepreneur survival have tried linking entrepreneur education as a skill needed for venture success (Elmuti et al., 2012) and found some causal relationship between the entrepreneur’s education, interpersonal skills, and the effectiveness of the
venture. However, these studies ignore the social connect aspect of education, especially from premier institutions. Such institutes tend to create greater confidence among entrepreneurs, a closer alumni network, and the perceived competence to lead teams. Elmuti et al. (2012) also caveat their study to say that purely education is not a determinant of success and needs to be coupled with innovative thinking and abilities.

Do these early-stage VCs rely purely on market and entrepreneur data (readily available), or do they depend on other factors that distinguish why one VC will invest in a venture and another will not’ or why one entrepreneurial firm in the same market, with a similar entrepreneurial background, survive (succeed), and others don’t.

5.1.1. Key Theories Explored

“For—believe me—the secret for harvesting from existence the greatest fruitfulness and the greatest enjoyment is—to live dangerously! Build your cities on the slopes of Vesuvius! Send your ships into unchartered seas!” - Friedrich Nietzsche, Die Fröhliche Wissenschaft (Book 4 St Januarius)

Although not as drastic as Nietzsche, entrepreneurs, by their definition, are people who seize and exploit opportunities (Shane & Venkataraman, 2000) - VCs will bet on the entrepreneur to “seize and exploit” such opportunities. Early-stage VCs will plug information gaps through signals that they interpret based on (a) what they know about the markets, entrepreneurial process, and third-party sources, (b) rely on their intuitive processing of entrepreneur vision, passion, and ability to execute, and (c) engagement or soft control on the invested company.
The study adds to the signal theory to include the interpretation of the signals and the influence and logic of such interpretation. Most of the past theories of entrepreneurship or information asymmetry try to address how buyers and sellers fill in gaps to ensure there is a logical transaction. However, these theories do not reflect early-stage VCs' linear risk mitigation process as they invest in a risky and unpredictable venture.

The paper focused on the information asymmetry between early-stage VCs’ knowledge and the rationale behind venture creation. VC investment decisions face challenges like those of a used car buyer, and the paucity of information, newness of transactions, and perceived credibility of the entrepreneur are significant issues. Information asymmetry as a concept has spanned multiple disciplines (strategic management, international business, organization theories, entrepreneurship, human resource management, and organizational behavior) and across numerous theories (agency theory, institutional theory, resource-based theory, signaling theory, and transaction cost economics) in the last two decades (Bergh et al., 2019). Stiglitz (2002) considered the subject’s seminal authority, describing information asymmetry wherein “different people know different things.” Information asymmetry exists in all relationships, especially where one must gain by getting approval from the other. In this scenario, the entrepreneur asks for funds from early-stage investors. Without tangible data, historical performance, unit price metrics, or basic financials, the VCs make investment choices based on unimpeachable signals interpreted through intuitive decisions. Limited information
is one of the most critical challenges surrounding human and organizational engagements (Bergh et al., 2019).

The study contributes to some of the traditional approaches that were applicable in high data environments against early-stage investing that is high noise and even higher uncertainty. The study extends the work done by researchers who have examined signal interpretation in an entrepreneurship model (Wesley et al., 2020; Blume & Covin, 2011; Colombo, 2021). For example, Gompers’ work in 1995 aimed to examine venture capital (VC) funding from the agency theory perspective. Gompers’s work found that as most early-stage investments were in knowledge-based ventures with high technology components, these ventures lacked tangible assets. An early-stage VCs ability to use financial prudence or asset pricing was limited. Some of the more recent work has focused on how VCs add value beyond funding. These studies conclude that VCs provide strategic guidance, networking, operational guidance, and access to management teams to enable their investments (Harrison & Mason, 2017). Other researchers have concluded that VCs manage information gaps by mitigating risks through agency agreements and contracts and staging investment funds (Solomon et al., 2021).

5.1.2. Methodology

This section highlights the methodology used for the study, including the profile of the respondents, the data collection approach, data coding and analysis, and the validity of the research.
Some of the seminal work done by Edmund Husserl and Martin Heidegger in the field of phenomenological research form the basis of the research study. While Husserl advocated for a separation between the researcher and the research, Heidegger believed that the researcher's experiences and understanding of the phenomenon are important for interpreting the research. The study involved in-depth interviews with VCs who manage funds for early-stage investment. The methodology was oriented towards understanding the social constructs, influences, and interactions related to venture capital investment at the seed funding stage, using an interpretivism approach that combines elements of both Husserl and Heidegger's approaches to phenomenological research.

**Respondent Profile**

The respondents were early-stage VCs who funded entrepreneurs at the earliest stage of formal funding. The respondents were through networks, industry sources (reaching out to Angel Networks), and Google search. Each person was sent a mail introducing the study, the institute, and the time needed for the interview. All respondents were Partners in the firm (Managing Partner, Venture Partner, Partner), and only one was an Associate Partner but still had the decision-making authority on opportunities (Appendix C). The respondents were asked to focus only on early-stage investments. Only two of the partners interviewed had funds that were also focused on late-stage investments, while one had investments in a family-owned business. The respondents were told to focus only on their early-stage investments.
Finally, these were all India-based companies, although one had coverage across Asia. The investment decisions were focused primarily on their investment in Indian entrepreneurs, with one company including investment in Silicon Valley but with an Indian entrepreneur.

**Data Collection**

Respondents were sent an email giving background on the study (Appendix A) and that the call would be recorded but not shared outside of the interviewer. Although the calls were set up as video calls, only two respondents decided to opt for video since the time for the call was either early morning their time, weekend, or late evening India time. Zoom professional account was used for setting up the call and recording them. The calls were stored on the Zoom cloud account and personal computers, and each respondent was given a number to respect their privacy. Emails, network connects, and LinkedIn requests were sent out to more than 40 respondents, and 16 respondents agreed to be interviewed. However, two did not respond subsequently to meeting requests. 14 interviews were completed over five months. The interviews were based on a guide rather than pre-structured questions to enable free-flowing discussions and understanding of the phenomenon. Stevick (1971) recommends not using written questions since those tend to move towards a pre-structured explanation of the phenomenon rather than purely understanding the subject’s experience.

The interviewing process was broken into three linear phases. Phase 1 was four interviews to conduct data validity and reliability using the interview guide.
Brown (1996, p. 231) described data validity as “the degree to which a test measures what it claims, or purports, to be measuring.” Based on those four interviews and discussions with the committee chair, the guide was modified to drill deeper into some of the points brought out by the VCs. For example, “passion” was probed further to understand “passion for what.” Similarly, terms like “familiarity with the business” were probed further to understand familiar with what part of the business. The second phase included five interviews built up on the first four interviews but with greater depth in each response area. Only one first-phase respondent was contacted again for clarification. The final phase of the interview was conducted two months apart, allowing the researcher time to start looking at the data set.

Data Analysis

Basit (2003) says that qualitative data analysis is arduous and demanding. In Phenomenological studies, the researcher draws upon their background and learnings to first-hand experience the data (Taylor & Bogdan, 1998). The core part of the coding and analysis includes “recognizing patterns among words” and “composing a meaningful picture without compromising its richness and dimensionality.” (Leung, 2015). Bansal & Corley (2011) argue that data must be systematically coded to identify themes and relationships between constructs. Using methodology by Braun & Clarke (2015) and some of the seminal work by Kaam (1969), Girogi (1975), Colaizzi (1978), and Polkinghorne (1989), the data coding and analysis were done in six steps.
(i) Understanding and Familiarizing with the Data

The data familiarization stage begins with the process of transcribing the recorded interviews. The tool used was an AI-based automated paid tool called Rev.com. The tool transcribes recorded interviews and provides manual quality and audit programs. However, for purposes of this study, the transcription was completely validated with recordings for the first four interviews. Based on the accuracy, the rest of the interviews were audited by doing random checks for every 20 minutes of recording. The transcription includes time stamps and the name of the speaker. The content was only edited for errors (spelling mistakes, transcription errors, and pronunciation errors), while all the fillers (hmmm, ah) were left in to understand pauses and inflections.

(ii) Code Generation

Researchers have argued the benefits of manual vs. automated coding and highlighted the benefits of each for qualitative research (Fujiwara et al., 2021). Manual coding allows researchers the ability to provide a detailed and nuanced analysis of qualitative data, flexibility in adapting coding strategies as needed, and its potential to uncover unexpected insights that may not be apparent using automated methods. While manual coding can be time-consuming and labor-intensive, it remains a valuable tool for researchers seeking to gain a deeper understanding of complex social phenomena. Fujiwara et al. (2021) found that even with some of the most advanced coding software, while both manual and automated coding methods could identify patterns, there were some differences in
the accuracy and efficiency of each method. Manual coding was found to be more accurate, as it captured more subtle and complex aspects of the discussions. However, it was also more time-consuming and labor-intensive than automated coding. Since the usage of words and the data was limited to the fourteen interviews, the research used manual coding.

(iii) Searching and Reviewing Themes

The transcribed interviews were printed and used for creating common code themes. Post transcription, the data were categorized into meaningful responses by moving around complete responses to multiple sections. Since the interview had started flowing freely, it was necessary to plug responses into different sections to identify patterns (Moustakas, 1994). The first four interviews gave meaningful and coherent patterns to develop insights into the research question. However, to ensure that the responses are not biased by the interviewer’s knowledge of the topic, the data was read and re-read several times to ensure that the researcher clearly understood the data (Basit, 2003). Saldana (2021, p. 12) says that the “majority of qualitative researchers will code their data both during and after collection as an analytics tactic, for coding is analysis.”

(iv) Theme Definition and Coalescing (align with the RQ)

Searching for themes while coding interviews is essential in phenomenological data analysis (Moustakas, 1994). Since this was an inductive study, the themes were created from scratch based on the data collected. Coding involves assigning a label or code to each significant statement to create categories
representing the data's themes. Qualitative academicians recommend coding as a heuristic exercise where the researcher codes the data both during and post data collection (Basit, 2003: Saldana, 2021). Coding not only captures the essence of the response but is also used to create themes or link the responses together (Richards & Morse, 2013). An exhaustive list of line codes was create based on the first four interviews and those were then validated with the subsequent interviews and fine-tuned. Coding enables creating themes or families of responses. Lincoln and Guba (1985) say that converting codes into family of responses requires a researcher to determine when the data “looks alike” or “feels alike” to group them together. Additionally, since the study is based on Heidegger’s existential concept of “being in the world” and leveraging own experiences to interpret the phenomenon, the code families were created based on own experience, validated with two early stage VCs post consolidation.

The first four interviews provided the key themes of risk mitigation, and later interviews helped fine-tune the narrative. The themes also identified gaps that need to be plugged in by further probing. For example, the post-funding support came up often during the interview, and when probed, it was highlighted as a key strategy for managing against agency risks. Similarly, when asked about associating with the entrepreneur, the early-stage VCs reflected that they understood the entrepreneur space well since some of them or their partners had previously been entrepreneurs. Since the idea was not to create frameworks or delve into grounded theories, the data were categorized into themes but were not subjected to tables or
tally counts. Grounded theory studies processes, actions, or interactions over time to generate a theory (Charmaz, 2014; Glaser & Strauss, 1967; Strauss & Corbin, 2015) and assumes the existence of multiple realities – sociology – social life around us. The purpose of this study was phenomenological to understand the essence of the experience. The process followed

*Reporting*

The final stage was reporting on the research study using the themes aligned to answering the research question. Findings from the study are included in Section 5.1.3.

**5.1.3. Findings**

Some of the more traditional models of entrepreneur finance are being challenged by newer-age technology investors and VCs who invest in areas they believe will provide them with non-linear growth opportunities. Under scenarios of hyper uncertainty, the concept of managing risks associated with information asymmetry manifests in multiple ways. India-based early-stage VCs are still at the stage of creating frameworks and guidelines that work. With success rates in single digits, these VCs hedge their bets through a portfolio approach and understand that some of their investments will yield significantly higher than normal returns while others may yield normal or below-normal results. The portfolio and fund performance dictate the ability of early-stage VCs to raise future funds. The findings reflect the challenges that both entrepreneurs and early-stage VCs face in raising funds.
In the early stages of entrepreneurship, the absence of tangible data can make it difficult for entrepreneurs to understand what early-stage VCs consider critical for funding decisions. This creates a challenge for entrepreneurs to determine what to present outside of the business case. On the other hand, VCs face the challenge of selecting the right mix of companies for their portfolio, knowing that only a small percentage will ultimately succeed. The challenge for VCs is to identify those companies with the greatest potential to succeed, despite the uncertainty that exists in the early stages of entrepreneurship.

Reflecting on the research questions, early-stage VCs realize they do not have the luxury of either past data or the ability to forecast accurately on financial metrics that later-stage ventures use.

**Research Question**

- At the least information stage, what signals do early-stage VCs capture to mitigate information asymmetry associated with evaluating a venture?

Information asymmetry delves into signals or inputs that are not quantifiable. Ability to understand the entrepreneurial process is critical for making investment decisions. However, VCs do not have all the knowledge, cannot completely articulate their mental maps, are cognitively constrained due to lack of data, and are bound rationally to what they know and experience (Cohen et al., 2019). Researchers have also argued that investors are systematically subject to cognitive bias – such as confirmation bias, overemphasizing information consistent
with their experience and beliefs, and looking at the actions of others to validate their theories (Cohen et al., 2019). Understanding the mental map on decisioning is often associated with heuristics, especially related to experience and recognition patterns (Gigerenzer & Goldstein, 2011). Some of the cognitive view theorists also argues that people use heuristics where the information is complex, uncertain and the environment is volatile (Kackovic & Wijnberg, 2020). Early-stage VCs rely on these patterns to manage their information asymmetry risks. According to the VCs, prior entrepreneurial experience or running large operations is a signal for risk reduction and better chances for success.

Various studies have considered passion essential and critical for being an entrepreneur. However, they have not examined passion as a signal for VC to invest, especially in the technology sector with the fast-changing landscape. Some have hypothesized that both product offering and entrepreneurial process passion are critical. However, too much pivot toward the product indicates a lack of adaptability and vision. Passion for the entrepreneurial process implies an ability to seize market changes and create a valuation for themselves and their investors vs. passion for the product offering that could become product-obsessive. Technology entrepreneurs start with a vision but often pivot with market and regulatory changes, especially within areas like Fintech, HealthTech, Insurance, and eCommerce, where regulations are still being defined in India.
The findings reflect multiple signals that are captured and interpreted by the early-stage VCs. The five distinct themes where early-stage VCs pick up signals are:

(a) Selective deal sourcing – According to early-stage VCs, identifying investment opportunities is a critical functional area, given the limited information available on up-and-coming entrepreneurs. As a result, the ability to identify and source high-quality investment opportunities is paramount. To this end, most VCs maintain a deal desk, which serves as the first filter for identifying deals that they will shortlist and evaluate. Approximately half of the deals that VCs engage in are actively sourced, while the other half are reactive opportunities that arise when entrepreneurs contact the VCs’ deal desk, submit inquiries via their website or LinkedIn, or are introduced through their networks. By selectively sourcing investment opportunities, VCs are able to manage information gaps by seeking third-party validation. Specifically, VCs seek third-party validation of an idea or minimum viable product (MVP) through incubator or accelerator programs that refine the product and approach before presenting it to the VCs. In addition, VCs rely on their existing networks of angel investors, their portfolio companies, and institutional connections to source and validate potential investment opportunities. VCs consider angel networks (not individual angel investors) and growth programs, such as credible accelerators and
incubators, to be instrumental in validating ideas and mitigating risks associated with the unknown.

(b) Pre-defined markets - Most early-stage VCs have a focused approach toward specific markets or industries. By doing so, they can concentrate their efforts on a narrow list of industries where they believe there are opportunities for growth. This approach enables VCs and their teams to manage their bandwidth effectively, considering the hundreds of proposals they receive each month. The defined markets also allow VCs to contribute post-investment to their social networks and provide active coaching to the entrepreneur and founding teams. The study reveals that early-stage VCs mitigate their information asymmetry risks by investing in industries they understand and can contribute to, which differs from past research that has emphasized only factors such as market, products, technology, intellectual property (IP), and the entrepreneur. Once the VCs have shortlisted a venture idea that aligns with their pre-selected market, they evaluate it on multiple parameters, including problem clarity, contribution to portfolio companies, and sustained attractiveness at the exit.

(c) Heuristic Decisioning – The findings also indicate that heuristic decision patterns play a crucial role in mitigating information risks. VCs rely on their experience and recognition, and/or the experience and expertise of the entrepreneur, to minimize these risks. Repeat entrepreneurs or teams
that have managed large operational setups and can manage teams are preferred by early-stage VCs as they possess greater resilience and experience to handle an entrepreneurial venture. Early-stage VCs rely on such experience, whether success or failure, as a heuristic pattern of recognition and exposure. Moreover, VCs utilize their experience to identify red flags or risks associated with investment opportunities.

While each opportunity presents new challenges, early-stage VCs rely on their experience to mitigate the newness liability. Many VCs noted that since India lacks a mature mergers and acquisitions (M&A) market, their investment focus remains on exit through subsequent investors. VC experience or relationship with late-stage investors allows them to understand what these investors would look for in a company.

Additionally, some VCs bring experience as entrepreneurs and can use their knowledge of success and failure to identify potential pitfalls and challenges.

(d) Intuition-based decisions – The concept of intuition in decision-making has been the subject of previous research across numerous fields. While some scholars suggest that managers make decisions based on a combination of intuition and formal analysis (Simon, 1987), others argue that intuition can foster creativity and innovation more effectively than rational thinking and analysis (Poincare, 1969). Early-stage VCs have a low funding rate, investing in less than 5% of all deals they
receive. In evaluating ventures, VCs rely on both data and their own judgment and knowledge. The study of early-stage VCs reveals three key factors that influence decision-making: a complete understanding of the entrepreneur or founding team's vision, the team’s passion for the entrepreneurial process, and the ability to execute on the vision with resilience. To mitigate information asymmetry, VCs align their understanding of the opportunity with the entrepreneur's vision of the business. Passion is an important factor in VC decision-making, with VCs looking for signals of hunger and dedication in the quality of the founders they back. Harmonious passion, which arises from an independent interpretation and internalization of activities, is associated with persistence in the entrepreneurial decision-making process and the ability to seize opportunities. VCs seek to identify opportunity areas and evaluate them for value creation, aided by their predefined markets and entrepreneurial vision.

In the post-COVID world, VCs are looking for "Camels" and "Zebras," companies that can create ambidexterity or resilience in their business models and have a greater understanding of their business models in case of adversity. From a VC perspective, understanding the drivers behind the venture is critical for understanding the inherent risks. Gunter (2012) calls entrepreneurs as "individuals who in an uncertain environment recognize opportunities that most fail to see and
create ventures to profit by exploiting these opportunities." Other theorists have argued that opportunities as a phenomenon do not exist separately from individuals and need to be viewed as occurrences that entrepreneurs interpret differently. The entrepreneur then defines those opportunities as a part of the process and evaluates their viability before seizing and operationalizing them. The early-stage VCs, in the absence of real data, will evaluate the entrepreneurial process from the perspective of the entrepreneur.

As researchers have defined it, intuition originates beyond conscious thought, includes holistic patterns, and results in judgments based on emotions. Intuition usually comes into play in conditions of uncertainty, lack of precedence across emerging trends, limited information, and several alternative solutions. VCs rely on the entrepreneur's vision of the business and the reason and rationale for the venture. Traditional theories of entrepreneurship explain the entrepreneurial process as an iterative set of activities that creates valuation. Early-stage VCs are looking for a path toward value creation. The VCs' predefined markets aid in identifying opportunity areas, the entrepreneurial vision helps understand how entrepreneurs and founding team members will exploit such opportunities, and the VCs will then evaluate for value creation as part of the process.
(e) Post Funding Support. According to the study, early-stage VCs prefer to have a semi-active (light touch) role in the ventures they invest in, and this plays a significant role in their final investment decision. While the ability to take a meaningful stake in the venture is critical, VCs also look for coachable and cooperative entrepreneurs to mitigate risks. To define expected returns for investors, VCs use a portfolio approach that balances risks and rewards, and they must ensure that the venture remains attractive for subsequent investors. Typically, VCs acquire a 10% stake in the company to make their investment and time worthwhile while ensuring that entrepreneurs have enough stake to drive performance. The personal connection with the founding team is crucial to VCs when considering investment opportunities, as they need to work effectively together. Building a relationship with the partner and providing guidance, coaching, and a supportive environment can go a long way in sustaining the firm. The study found that VCs prioritize chemistry, ethics, governance, and trustworthiness of the founding team over other personal factors when making investment decisions. VCs actively contribute to areas such as capital allocation strategy, business planning, market and partnerships, and resources strategy.

5.2. Contribution of the Study

Drover, Wood, and Corbett (2018) say that concept of “signaling theory remains underutilized, even though it is an appropriate theoretical framework for
explaining investor decisions and the success of entrepreneurs in raising early external financing.”

Davidsson, et al. (2021) conducted a study to evaluate components of the McMullen and Shepherd (2006) conceptual framework of entrepreneurial action, to triangulate across the entrepreneur, venture idea, and external assessors. The model examined how external assessors comprehend the drivers behind the venture and the ability of the entrepreneur to seize and operationalize the venture idea (entrepreneurial process). The results indicated two paths of VCs mitigating the information asymmetry risks - one through betting on markets that they understand (thus reducing information gaps) and, secondly, through betting on the founding team’s ability to run the company and monetize the opportunity.

This study contributes to the work done around managing risks and making informed decisions based on information asymmetry. Previous research has highlighted gaps in understanding risks and decisions at the continuum of a firm’s creation and existence, particularly in the field of entrepreneur financing in the last 3-4 years. Earlier researchers (Tyebjee & Bruno, 1984; Fried & Hisrich, 1994; Hisrich & Jankowicz, 1990; Petty & Gruber, 2011) have examined venture investments to evaluate the deal origination, screening, structuring, and post-structuring activities, and decision criteria, such as investment size, geography, stage of financing, industry attractiveness, business plan, customer references, founding team, and long-term view of the deal (expected returns). However, these metrics tend to ignore the limited data available at the early stage, and the fact that
early-stage VCs do not have the luxury to assemble a pure metrics-driven investment thesis.

The current study with early-stage VCs focuses primarily on the information asymmetry and signals at the earliest stages, while examining the risk mitigation approach that VCs deploy for their investment. The early-stage portfolio is based on a portfolio approach and includes a larger pool of companies at the seed capital stage. VCs bring their knowledge of the markets and are keen to understand the opportunity through the eyes of the founders/entrepreneurs. At the earliest stage, the VCs consider venture ideas as fluid and will bet on the entrepreneur’s ability to seize opportunities and showcase a passion for the entrepreneurial process.

Academics (Kaplan & Stromberg, 2000; Hellman & Puri, 2000; Drover et al., 2017; Gompers et al., 2020; Scheaf et al., 2020 and Wood & McKelvie, 2015) continue to examine decision making across VC firms but still ignore the idiosyncratic nature of early-stage investments and use of signals in mitigating risks associated with investing in an early-stage venture. These studies have examined metrics such as the attractiveness of the opportunity (market size, strategy, technology, customer adoption, and competition), the management team (quality of the team, favorable performance to date), and deal terms (valuation, contractual risks) that are primarily available on late-stage investments.

Colombo (2021), while examining signal interpretation, clearly articulates that there is limited information on where signals are used and how they gain
legitimacy for investors. Since most of the work has been done on investing as a homogeneous activity, it is difficult for scholars to align these signals to different decision stages - later-stage investments, for example, interpret signals through human capital and affiliations (Meoli & Vismrara, 2019). Although research has advanced the understanding of signals but has not contributed to early-stage venture financing where signals are fluid. Colombo (2021) says that new ventures have high noise signals, while there is lower noise and more tangible signals at the later stage of investments.

The recent articles highlight that there are still gaps in understanding of the assessment criteria to manage information risks at the earliest stage of investment. Even some of the well-funded practitioners like Thomas Thurston agree that identifying companies to invest in and the decision inputs to invest is still an evolving area where VCs are trying to leverage AI and data sciences to identify potentially successful companies. Wesley (2022) indicates that there is little detailed or granular data on VC decisions and the areas would need deeper insights into why VCs commit social and financial resources. Colombo (2021) says that “entrepreneurial signaling literature is highly fragmented, and thus far, it has failed to offer comprehensive guidance for nascent ventures in search of funding”. Edelman et al. (2021) say that most signaling research focuses on singular positive signals and assumes that the audience is relatively homogeneous. Kaplan and Lerner (2016) say that since the information for longitudinal studies comes from
publicly available data, firms that do not go public are more difficult to uncover since these investments are usually not publicized.

These studies and others highlight the gap that is still inherent in the study of earliest of the early-stage investments. The research contributes to past studies, whilst focusing on the unique perspective at the initial stage of funding.
Table 2: Contribution to Existing Literature

<table>
<thead>
<tr>
<th>Paper, Author, Year</th>
<th>Key Findings</th>
<th>Contribution to the research</th>
</tr>
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<tbody>
<tr>
<td>Will the startup succeed in your eyes? Venture evaluation of resource providers during entrepreneur’s information signaling Wesley et al., 2022</td>
<td>Evaluate how propensity influences venture investors’ commitment to financial and social resources. VCs’ background and experience directly influence their ability to fund and confer social capital to the investee companies, especially at the nascent stage of firm evolution. Experienced VCs are also more inclined to interpret entrepreneur signals differently than VCs from varied backgrounds or without experience.</td>
<td>Wesley’s study focuses on a single unit of VCs’ experience and background as a variable while conferring social capital to the entrepreneurs. VCs association or familiarity with the markets influences their decision on allocating resources. This study goes a few steps further to say that VCs leverage consciously identifies companies within their comfort area to manage their information asymmetry gaps and the risk of newness. Conferring social and financial capital results from intuitive decisions based on understanding the entrepreneur’s vision, passion, and execution abilities.</td>
</tr>
<tr>
<td>The Use of Signals in New-Venture Financing: A Review and Research Agenda Colombo (2021)</td>
<td>Literature review on entrepreneurial signals and interpretation on funding. Believes that signal interpretation in new venture financing lacks clear direction. Literature research created three key insights – signals are interpreted differently by different investors; signals and their needs and interpretations differ</td>
<td>The literature review by Colombo exposes key gaps in past literature related to early-stage investors and signal interpretation at different stages and with different investors’ experiences. The study lays out the signal interpretation process at the earliest investment stage, from deal sourcing to funding.</td>
</tr>
<tr>
<td>Signal Configuration: Exploring set-theoretic relationships in angel investing</td>
<td>Examine how new ventures credibly signal the credibility of the firm. Supports the work by Colombo, saying that past research indicates that signals are interpreted homogeneously irrespective of the investment stage and investor background. Although based on angel investors, the research highlights that investors use the dual process model of signal interpretation, which is automatic and triggers memory-based cognitive processing. Investors use a systematic processing mode of signal interpretation if that does not provide answers.</td>
<td>The authors indicate that there are gaps in the understanding of signals at various stages of investment. Early-stage investments are high noise signals that require cognitive interpretation and sieving through what VCs consider important for managing their portfolio risks. The study indicates that early-stage VCs will cognitively filter the signals based on what they know, believe, and can control.</td>
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<tr>
<td>Signaling in the context of early-stage equity financing: review and directions</td>
<td>Review and understand the impact of signaling theory on investments by VCs and Angel Investors.</td>
<td>This study partially reflects the study’s findings that indicate that early-stage investment and risk management rely on entrepreneur competence and cooperativeness.</td>
</tr>
<tr>
<td>How do venture capitalists make decisions?</td>
<td>Using Kaplan and Stromberg’s (2001) framework, authors say that VCs rely more on the management team’s ability than business characteristics to reduce information gaps. This is particularly true across early-stage investors. The authors also indicated that risk mitigation spans the entire evaluation process – deal sourcing, deal selection, and post-investment support. Deal selection is the most critical factor for managing risks.</td>
<td>The study echoes the findings from Gompers et al. (2020) on the process and the criteria for investing. However, it further adds intuitive decisions and interpretation of narratives (vision, passion, and execution abilities) of the entrepreneur as signals for managing information asymmetry. Findings show that concepts like homophily (association with the</td>
</tr>
<tr>
<td>Backing the Horse or the Jockey? Harrison &amp; Mason (2017)</td>
<td>UK-based angel investors are more inclined to manage agency risks (entrepreneurs) rather than market risks. They view entrepreneurial characteristics and experience as having the greatest impact on the riskiness of the investment. This group mitigates such risk by seeking personal and informal information over traditional sources of information. Valuation is not a function of financial but personal assessment.</td>
<td>Agency risks are significant for angel investors since they have limited control or influence over entrepreneurs. This study moves the needle on early-stage VCs, who mitigate risks through selective deal sourcing based on homophily (their knowledge of and association with the market) and intuitive decisions (buying into the vision, passion, and execution abilities of the entrepreneur)</td>
</tr>
</tbody>
</table>
5.3. Discussions and Implications

5.3.1. Conclusion and implications

It is clear from the above discussion that signaling theory plays an important role in the early-stage investment decision-making process of VCs. Entrepreneurs send signals to VCs to provide information about their ventures that is otherwise unobservable due to information asymmetry. These signals vary by characteristics such as content, costs, and intentionality, and the strength, quantity, and amplification of the signal also affect its effectiveness. The VCs must have the ability to receive, identify, and objectively process these signals to make informed investment decisions.

It is important to note that individual signals do not provide a comprehensive view of the opportunities or risks associated with early-stage investments. Instead, a series of linear and tangential signals, along with environmental norms, create an educated view of venture feasibility. VCs must rationalize their decisions through data points that justify why they invest in a particular entrepreneurial firm, and creating an unimpeachable logic is critical since the general partners are investing funds created by external investors.

Overall, the study of signals in the context of early-stage investments is critical to managing risks from initial deal sourcing to funding. It is a complex process that requires a thorough understanding of the signaler, the signal, and the receiver, as well as an ability to identify and interpret multiple signals to make informed investment decisions.
Prior studies have attempted to evaluate early-stage investment decisions and risk profiles through post-hoc studies or as a homogeneous group of investors, but they fail to capture the idiosyncratic nature of early-stage funding. Post-hoc studies are prone to confirmation bias. Early-stage VCs must document and highlight their investment thesis, including information about the founders, market size and growth, risks and challenges, product differentiation, commercials, and unit economics for the product. As one early-stage VC said, it then becomes an excel and PowerPoint exercise.

Most quantitative studies aimed at creating frameworks or theories tend to collect data from either successful ventures or venture investments where the VCs have data to make decisions, which again tends to skew towards later-stage investments and does not reflect the early-stage nuances. Furthermore, while each VC will have access to a similar dataset, market metrics, competitive landscape, and entrepreneur credentials, each will make their decisions based on factors beyond table-stake metrics. Intuitive and heuristic-based decisions do not arise just from the VC’s understanding or attractiveness of the markets, but from how they perceive the entrepreneur's ability and passion to execute.

5.3.1.1. Implications for the Early-Stage VC

The current research aims to provide a unique perspective to early-stage VCs by shedding light on the factors that affect their investment decisions, which can help them mitigate the risks associated with information asymmetry. Early-stage VCs face the challenge of having to deal with hidden and unobservable
indicators that may indicate whether investing in a particular venture would be profitable. To generate returns for their limited partners, VCs leverage various structures, such as hedging through portfolio diversification or betting on a single industry with multiple entrepreneurs. However, as the study shows most early-stage VCs rely on intuition and heuristics or recognition and experiential patterns to make investment decisions.

This study offers a comprehensive view of the decision-making process that early-stage VCs follow to manage investment decisions based on imperfect or ambiguous data. When performance data is not available, entrepreneurs signal the strength of their venture through either personal attributes (such as experience, expertise, passion, abilities, vision, and sustainability) or external attributes (such as association with established angel networks, value-add incubator programs, or references through existing networks). Early-stage VCs use a filter or mechanism to capture and interpret these signals and assign importance to these signals based on heuristic factors like risk appetite, experience, and cognitive comprehension. The significance of these signals is then relayed towards the risk-reward mechanism that early-stage VCs use to manage their portfolio.

Table 3 highlights some of these signals that are pertinent for early-stage VCs and considered favorable.
### Table 3: Signal Relevance and Strength

<table>
<thead>
<tr>
<th>Signals</th>
<th>Considered Favorable</th>
<th>Neutral / Not Considered Favorable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Association / Source of Funding</strong></td>
<td>Angel Network, Credible Incubator / Accelerator Programs</td>
<td>Individual Investors, “Friends and Family,” HNIs.</td>
</tr>
<tr>
<td><strong>Recommendation</strong></td>
<td>Existing PC Companies, Late-stage investors</td>
<td></td>
</tr>
<tr>
<td><strong>Selective Outreach</strong></td>
<td>Internal Deal desk</td>
<td>Unsolicited</td>
</tr>
<tr>
<td><strong>Familiar Pre-defined markets</strong></td>
<td>Portfolio constructs (generalization vs. specialized portfolio), Longer term “Opportunity.”</td>
<td>Short-term “event.”</td>
</tr>
<tr>
<td><strong>Entrepreneur Expertise</strong></td>
<td>Prior entrepreneur experience (success or failure), Prior managerial experience “Feel” based on VC experience.</td>
<td>Lack of industry experience</td>
</tr>
<tr>
<td><strong>Iterative Effectuation</strong></td>
<td>Ability to tell the story, articulate vision</td>
<td>Lack of completeness of vision, understanding of the ecosystem, internal/external strengths</td>
</tr>
<tr>
<td><strong>Entrepreneur Vision</strong></td>
<td>Passion for the entrepreneurial process, Commercial and monetization mindset, Think big.</td>
<td>Passion only for the product</td>
</tr>
<tr>
<td><strong>Ability to Execute</strong></td>
<td>Founding teams (right talent mix)</td>
<td>Individual entrepreneurs lack expertise (in-house) – i.e., a technologist for a platform venture.</td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td>Appetite for the longer haul, Ambidexterity</td>
<td>Short term view</td>
</tr>
<tr>
<td><strong>Engagement / Coachability</strong></td>
<td>Openness to engage and leverage VC and portfolio expertise.</td>
<td></td>
</tr>
<tr>
<td><strong>Cultural Alignment</strong></td>
<td>Alignment with the belief and norms of the VCs mitigates the liability of newness.</td>
<td>Corporate governance challenges</td>
</tr>
</tbody>
</table>
The study found that early-stage VCs fund only 1-2% of the deals they receive, highlighting the importance of understanding their selection and funding criteria and associated risks in establishing a cadence. This research contributes to the development of a structured thinking approach to manage information asymmetry risks by identifying and interpreting signals. It establishes a linear and tangential approach to the management of investment decisions, providing early-stage VCs with an understanding of the factors that influence their decision-making processes.

5.3.1.2. Implications for the Entrepreneur

The study aims to help entrepreneurs and founding teams increase their chances of obtaining funding for their ventures. Not all entrepreneurial ventures receive funding, and even fewer receive subsequent funding or become successful. Therefore, entrepreneurs must align their funding pitches with the VC's investment thesis, considering the signals that are valuable to VCs and the filters they use to interpret those signals. Signals are not all evaluated equally; some are stronger and more relevant than others. Therefore, entrepreneurs must consider the strength and relevance of their signals.

The study found that VCs prioritize certain signals over others. For example, they value entrepreneurs who have a passion for the entrepreneurial process and know what is required to scale operations. Individual angel investors are weaker signals than angel networks, and incubator programs that only provide
infrastructure are weaker signals than VC-based or corporate programs. Additionally, VCs prefer a monetized approach over a purely product-based strategy. The concept of signals has been studied in various disciplines, and most theorists agree that signals are used to transmit the quality of the product to mitigate against information asymmetry. Signals must be credible, have an opportunity cost, be relevant, and be agreeable through heuristic or intuitive methods. The study provides insights into the signals that VCs value and how entrepreneurs can increase their chances of obtaining funding by aligning their pitches with those signals. Overall, the concept of signals to mitigate against information risk is critical in the entrepreneur finance journey.

5.3.2. Limitation

The present phenomenological study focuses on early-stage VC decision-making and risk mitigation, utilizing a small sample size to provide insights. Although the study offers valuable insights, it does not provide a decision-making framework or a clear indication of the critical factors that drive investment decisions. Based on 14 interviews with India-based VCs, this study is limited to the nascent yet fast-growing investment market and does not consider the sociological aspects of choice or how social environments may influence underlying decision-making. Thus, a longitudinal study would offer a more in-depth understanding of the implications of early-stage VC decisions on funding. Additionally, the study was confined to understanding the criteria for investment and did not explore the sociological aspects and influences on decision-making among early-stage VCs.
The study also focuses on information asymmetry risks and associated signals at the funding stage. However, financial performance, market, regulatory, and product risks are not within the scope of this study. VCs typically evaluate financial burn, finances required to make the product commercially viable, and funding needed to scale the product, which are balance sheet factors and inherent in any financial transaction but are not explored in this study as risk influences.

Finally, the study utilizes convenience sampling, which may result in a more homogenous sample than random sampling. Nonetheless, the researcher tried to collect some interviews randomly through LinkedIn and Google search, and the responses aligned with the outcomes of the convenience sampling.

5.4. Recommendations

5.4.1. Generalization

According to Smith et al. (2009), some researchers contend that comprehending a phenomenon is a multifaceted, interactive, iterative, and dynamic process rooted in a practical approach, which cannot be replicated. Therefore, generalization from a phenomenological study is not deemed essential. Furthermore, each phenomenon draws from unique experiences (Lincoln & Guba, 1985), rendering generalization a challenge. The responsibility of future researchers is to not to transfer but utilize the findings and apply towards newer research on its own merit.
5.4.2. Potential direction of future research

Numerous decision-making theorists have argued that intuition to rational analysis represents a continuum in which data supports the initial feeling (Smith & Shefy, 2004). Smith & Shefy (2004) say that the gap between intuition and rationality are not unbridgeable. Effective decision making in fast and vastly unknown and ambiguous environments of early-stage funding necessitates a mix of intuition and analysis. The foundational aspects of understanding the markets, the key players, platform, technology, and growth rates are already in place before these early-stage VCs start looking who, according to them, will succeed. One VC said that if there are TAM (Target Addressable Market) numbers already published, then will be players and competitions. There are two key areas of future research on risk mitigation associated with early-stage ventures. Although the risks are never fully mitigated in an environment of uncertainty, there are components of knowledge based on experiences, and intuition on what provides the best chance of success.

Moving from a single unit of signal interpretation, information asymmetry theories need to look at linear interpretation of continuous signals and signal interpretation based on knowledge and intuition. This study touches upon those two areas, albeit focusing on the broader approach and process for managing investment risks. Future research needs to understand investment decisions through a lens of “belief” that influence these financial decisions and “intuition” that is shaped by experience.
As the study shows, personal belief has a significant influence in managing investment risks for early-stage VCs. In some cases, the VCs believe that a specific type of venture is more likely to succeed and will follow that belief as they make decisions without hard data. Belief is a cognitive state that involves accepting something as true or real without necessarily having concrete proof or evidence (Leitgeb, 2014). Psychologists and philosophers have extensively studied the theory of belief and developed various models to explain how and why people form beliefs. One of the most influential theories of belief is the social-cognitive theory (Bandura, 1997), which posits that a complex interplay of social and cognitive factors shapes beliefs. Beliefs are not simply the result of logical reasoning or empirical evidence but are heavily influenced by social cues, cultural norms, and personal experiences.

Future research can examine social and cognitive factors and their influence on decisions that bet on a low probability and high reward scenario. Along the same lines, researchers have also examined cognitive dissonance, which explains how people resolve inconsistencies between their beliefs and their actions. To reduce this discomfort, they may either change their beliefs or seek new information supporting their beliefs (Harmon-Jones & Mills, 2019). Research around belief also needs to include confirmation bias which posits that people tend to seek out information that confirms their pre-existing beliefs, leading to ignoring or discounting signals or information that contradicts their beliefs (Peters, 2020). Beliefs are a complex interplay of social, cognitive, and emotional factors that
shape them. Understanding these factors can help comprehend how early-stage VCs manage their investment risk in the absence of data.

Secondly, one of the main challenges of studying intuition in decision-making is that it is a subjective and difficult-to-measure construct. However, researchers have developed several methods for studying intuition, including self-report measures, behavioral tasks, and physiological measures. These methods have enabled researchers to explore the factors that influence the use and effectiveness of intuition in decision-making (Rew, 1988; Dane & Pratt, 2007; Adam & Dempsey, 2020). There seems to be clarity on what specific characteristics of a venture attract these early-stage ventures and a common theme to converting those intuitive and tacit measures into investment decisions. However, there still lacks a trigger point understanding of what combination of such variables makes the early-stage VC believe in the venture. Some of the attributes seem to lean towards confirmation bias and call out entrepreneur characteristics that entrepreneur theorists have highlighted in the past. Understanding how much of those weigh in on decisions and what mix of such attributes is appealing could provide a framework for decisions.

Finally, signaling theory has gained momentum in the past decade to understand the underlying engagements across all field, including financial and funding transactions, HR practices and strategic management. However, there still are gaps in understanding optimal mix of signals that constitute a positive outcome. Recent signal theorists (Capizzi et al., 2022; Stevenson et al., 2021: Partanen &
Goel, 2017; Hoenig & Henkel, 2015) or literature review on signal constructs (Bafera & Kleinert, 2022) highlight the relation of single signal to outcomes but do not consider the broader aspect of how multiple signal interplay to create a decision matrix. This study lists out signals that early-stage VCs capture to manage their decision risks but does not establish a prioritization or relative importance of the signal. Future research needs to focus on signal interception, prioritization and significance of these signal in the high noise early-stage investment phenomenon.

However, as Nietzsche says, “For—believe me—the secret for harvesting from existence the greatest fruitfulness and the greatest enjoyment is—to live dangerously.” Friedrich Nietzsche, Die Fröhliche Wissenschaft (Book 4 St Januarius). Investment decisions will always carry risks and will never be an exact science, for the concept of entrepreneurship, by definition, carries survival risks. As a result, decision to invest at the earliest stage of funding is not always based on hard facts but on signals and indicators that are not in the control of the investors.
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https://doi.org/10.1016/S0065-2601(10)42002-4


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Appendix A

Note to Respondents

Dear Respondent,

You are invited to participate in a research study conducted by Vineet Malhotra of Florida Institute of Technology for the doctoral program. The objective of the study is to understand your experience in identifying, shortlisting, and funding entrepreneur firms at the seed funding stage. The study is being conducted by me as a part of the doctoral dissertation and the output will be presented to the dissertation committee at completion.

The study will include a 60–90-minute interview and will be recorded and transcribed. I am also requesting additional 15-30 minutes to come back to you with any clarifications if needed.

Individual level data will not be shared and only aggregated data from 10-15 interviews will be shared with the committee. None of the responses will be personally attributed to you and the names of the interviewees, company names and identifiable information will not be shared during transcription or with the committee. As a thank you, I will share the final output of the dissertation, along with a copy of the presentation with my finding.

Your participation is entirely voluntary, and you are free to not participate or withdraw from study at any stage during data collection.
Appendix B

Interview Guide

Creating the interview questions that capture insights requires the interviewer to ensure that the questions or prompts are generative of the research objective. The questions need to be salient, capture the experience, create a structure of normal, inquire about the perception of cause and effect and capture the respondent’s views (Jiménez & Orozco, 2021). The question guide is a series of prompts, rather than a list of questions. Academicians have long argued that the effect of leading questions and bringing the interviewer’s bias or background into the series of questions. The interview guide is based on a series of prompts. Gerson and Damaske (2020) recommend creating a series of concepts and crafting an interview guide based on those concepts. Other researchers like Seidman (2019) recommend interview protocol to include probes and ensure that the interview allows for the respondents to talk, while McCraken (1998) and Weiss (1995) recommend flexibility and natural adaptation with each of the respondents.

Interview guides can potentially start with “grand tour” questions to open the discussions (McCracken 1998; Spradley 1979). The attached interview guide is based on starting with the grand tour question on decision criteria and then leads to prompts, rather than a series of tightly crafted questions. Becker (1998) and Carr et al. (2017) recommend that the prompts should be open-ended, single-barreled, not leading, and not assume a predefined notion. The interview guide also follows the
recommendation to allow the VCs to dig deeper into their responses (e.g., “tell me more about that”; “share your experience”; “can you offer an example?”).

Prior research has examined the funding decisions either through a common set of criteria (Petty and Gruber, 2011; Kaplan and Stromberg, 2001; Gompers et al., 2020) or as a tradeoff between the venture idea and the entrepreneur (Maxwell, 2016; Mitteness et al, 2012) To support the research questions on prioritization of venture ideas versus entrepreneur, the interview guide will leverage past literature from Petty and Gruber (2011) and Kaplan and Stromberg (2001), and the delineation of venture idea unbundled from the entrepreneur as examined by Davidsson, Gregoire and Lex (2021). There are blocks of questions, with unaided and aided responses and these will be captured as such. Each interview will add to the prompted list until data saturation.

Phase I - Qualitative

Part A. Introduction

a) Ask permission to record and capture consent
b) Introduction and purpose of the study – Researcher and Respondent
c) Description of the focus of the study – orient towards the earliest part of the seed stage of funding.

Part B. Firmographics / Portfolio Overview

a) Information about the current portfolio, including
   a. the number of entrepreneur firms,
   b. types of firms (capture industry verticals and sectors)
Part C. Source of Opportunities

a) How do you source new opportunities to fund?

b) What percentage of firms do you typically fund – that is, of the opportunities that come at your desk, or you identify, what percentage of opportunities get funded by you?

Part D. Unaided Responses – Criteria for Assessment

a) How do you assess the feasibility of the deal? (Assessment)?
   - Give me an example of something recent.

b) How do you gather information on the deal (Assessment)
   - Give me an example of something recent

c) In the absence of tangible data, how would you evaluate the existing asset or capabilities (Funding)

Part E. Unaided Responses

a) How do you evaluate the entrepreneur and founding team?

b) How do you evaluate risks associated with the ventures?
   - Give me an example of something recent.

c) In the absence of tangible data, how would you manage risks across entire selection process.
## Appendix C

Firmographic Information

<table>
<thead>
<tr>
<th>Resp. #</th>
<th>Focus</th>
<th>Title</th>
<th>Number of companies in current portfolio</th>
<th>Average funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Co-creation and knowledge sharing</td>
<td>Venture Partner</td>
<td>10</td>
<td>$1 M</td>
</tr>
<tr>
<td>2</td>
<td>CoEs for specific work areas</td>
<td>Managing Partner</td>
<td>5</td>
<td>Not Disclosed</td>
</tr>
<tr>
<td></td>
<td>Four areas of support - sales and marketing, entrepreneur coaching,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>technology stack, and financial planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Made in India&quot; companies, and focused only on seed stage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Craft and Circular Economy Enterprises</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Indian handmade crafts, design and circular economy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Middle India Digitization, SaaS from India to world</td>
<td>Managing Partner</td>
<td>7</td>
<td>$.5 M</td>
</tr>
<tr>
<td>4</td>
<td>MVP stage - early-stage investments for &quot;ideas on paper&quot;</td>
<td>Associate Partner</td>
<td>10</td>
<td>$1</td>
</tr>
<tr>
<td>5</td>
<td>Limit investments to high scale / growth companies</td>
<td>Partner</td>
<td>6</td>
<td>$1 - $2 M</td>
</tr>
<tr>
<td>6</td>
<td>Early stage primarily Tech and SaaS</td>
<td>Managing Partner</td>
<td>7</td>
<td>$2.5 M</td>
</tr>
<tr>
<td>7</td>
<td>Focus on young entrepreneurs. Product needs to be beyond</td>
<td>Managing Director</td>
<td>8</td>
<td>$1 M</td>
</tr>
<tr>
<td>Resp. #</td>
<td>Focus</td>
<td>Title</td>
<td>Number of companies in current portfolio</td>
<td>Average funding Amount</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-----------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>11</td>
<td>MVP and have some customer adoption</td>
<td>Managing Partner</td>
<td>6</td>
<td>$1-$2M</td>
</tr>
<tr>
<td>12</td>
<td>Fund run by technology experts for deep tech and engineering innovation</td>
<td>General Partner</td>
<td>3</td>
<td>$.5 to $1 M</td>
</tr>
<tr>
<td>13</td>
<td>Early-stage investment - Micro VC</td>
<td>Managing Partner</td>
<td>8</td>
<td>$.5 to $1 M</td>
</tr>
<tr>
<td>14</td>
<td>Focus on providing GTM support and product &amp; business strategy</td>
<td>Managing Partner</td>
<td>4</td>
<td>$.5 to $1 M</td>
</tr>
</tbody>
</table>
## APPENDIX C

Firmographic Information (Cont’d)

<table>
<thead>
<tr>
<th>Resp. #</th>
<th>Industry Focus (Focus)</th>
<th>Geography Focus</th>
<th>VC background</th>
<th>Firm Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tech disruptors (FinTech, AgriTech, HealthTech, EcommTech)</td>
<td>India-based entrepreneurs, global footprint</td>
<td>Public market, Entrepreneur, Banking</td>
<td>Set up in 2015, fourth fund.</td>
</tr>
<tr>
<td>2</td>
<td>Supply chain, Future of Work, Health (Age Care) and Lending/Banking</td>
<td>Industry veterans (ex-Bankers, for example)</td>
<td>CoE based model providing support and coaching</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Focused on Platform business</td>
<td>Fintech, Consumer internet, Content and Media, and SMB SaaS</td>
<td>Ex-Entrepreneurs providing finance and strategy guidance</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>India only</td>
<td>Entrepreneur and coach</td>
<td>Peer meetings, regular offsites, coaching sessions</td>
</tr>
<tr>
<td>5</td>
<td>Handicrafts</td>
<td>Indian handicraft looking for global expansion</td>
<td>Global CPG companies</td>
<td>Help handicraft companies target global markets</td>
</tr>
<tr>
<td>6</td>
<td>Tech disruptors</td>
<td>India based companies</td>
<td>Serial investors (15 years)</td>
<td>Provide coaching, strategy, and business mentorship</td>
</tr>
<tr>
<td>Resp. #</td>
<td>Industry Focus</td>
<td>Geography Focus</td>
<td>VC background</td>
<td>Firm Characteristics</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>7</td>
<td>Fintech, AgriTech, Healthcare and Logistics</td>
<td>India based companies</td>
<td>Investor banking, VC, and board member</td>
<td>Not less than 10% stake</td>
</tr>
<tr>
<td></td>
<td>Industry agnostic - but scale business. Stay till subsequent funds - two successful exits</td>
<td>Industry based companies - typically look at young entrepreneurs</td>
<td>Entrepreneur and Investor</td>
<td>All partners are ex-Entrepreneurs. Provide mentorship, expertise, and business introductions. 10-15%. Lower, if multiple investors.</td>
</tr>
<tr>
<td>8</td>
<td>Healthtech, FinTech, SaaS</td>
<td>India only</td>
<td>Investment banking and M&amp;A advisor</td>
<td>Provide coaching and support</td>
</tr>
<tr>
<td>9</td>
<td>Healthtech, Gaming and FinTech</td>
<td>India</td>
<td>Angel Investor, VC and Entrepreneur</td>
<td>Associated with premier colleges to identify funding ideas</td>
</tr>
<tr>
<td>10</td>
<td>Deep tech enterprise solutions</td>
<td>India, Israel, and US</td>
<td>Investment and deep tech</td>
<td>Industry network, coaching resources, and follow-on capital</td>
</tr>
<tr>
<td>11</td>
<td>IT Services with focus on SaaS</td>
<td>India and US</td>
<td>IT with large MNC and Angel investment network</td>
<td>Provide resources for finance, HR, and tech development functions</td>
</tr>
<tr>
<td>12</td>
<td>Consumer platforms</td>
<td>India</td>
<td>Entrepreneur and financial analyst</td>
<td>Hold companies for shorter period to help them in subsequent funding rounds</td>
</tr>
<tr>
<td>13</td>
<td>AI Based Technologies</td>
<td>India</td>
<td>Entrepreneur and Technologist</td>
<td>Active engagement across product commercialization</td>
</tr>
</tbody>
</table>