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Agency of Corporate Venture Capitals: Understanding Corporate Venture Capitals' Decision-Making Process through Evolutionary Economic Geography

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Abstract

Evolutionary economic geography (EEG) is concerned with how economic activity has evolved in regions over time. Through concepts such as path dependency and regional diversification, most focus has been on understanding the change in economic activity. However, attention to the effects of the actions of micro-scale entities such as firms has yet to keep up with the developments in evolutionary economic geography. Acknowledging the importance agency of firms in economic development, this thesis focuses on the agency that corporate venture capitals (CVC) play in regional economic development. Innovation is a vital part of economic development. Firms historically rooted in a region continuously add new technologies and ideas to support and further capitalize on their already existing, incumbent business practices. In the long run, this may have implications on how a firm diversifies into sectors that relate to their current business practices, given that they may employ new technologies that steer certain firm activities in new directions. Through evolutionary economic geography literature, the long-run effects of such activities have been explored. This thesis initially aims to understand how the empirical practice of corporate venture capital decision-making can be understood by the evolutionary economic geography in Norway. Then this thesis aims to further explore how CVC activity plays a role in regional economic development, through industrial diversification and path dependency. In other words, the agency of CVCs in regional economic development will be explored and the following question will be posed: *To what extent can the decision-making process in corporate venture capital investments be understood from the perspective of evolutionary economic geography?*

In order to understand empirical practices, 6 CVCs have been interviewed. These CVCs' parent companies can be classified into the following two categories: (i) energy, and industrial technologies, and manufacturing industries; (ii) service industries. After the interviews, related and unrelated variety, as well as open innovation theory was applied to the findings. The analysis showed that CVCs emerge as agents that enable learning between startups who develop new technologies and ideas, as well as invest and employ these new technologies and ideas to potentially diversify into related sectors. In the long run, this may have implications for regional diversification as well as path dependency.

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1. Introduction

Origins of the venture capital (VC) industry can be traced to the 1940s, when Karl Compton, the president of Massachusets Institute of Technology (MIT) at the time, and General Georges F. Doriot, a professor at Harvard Business School, started to invest into technologies from the World War II (Gompers & Learner 2001). Since then, the VC industry has grown significantly with new independent venture capitals (IVC) being added to the industry as well as the creation of corporate venture capitals (CVC). A venture capital can be defined as a professionally managed independent pool of capital that invests in privately held, high-growth companies (Gompers & Lerner 2001). VCs play a key role in promoting innovation. By nature, VCs invest in new technologies or new applications at an early stage whereas other types of investors are usually reluctant to do so. This means VCs may be critical in supporting innovation by injecting capital into new technologies at an early stage and attempting to support their development as they will be benefitting from their growth.

Following the creation of CVCs, a distinction occurred, where the definition of VC was applicable to what is called an IVC, given that this definition emphasizes the independence aspect of the "pool of capital". On the other hand, CVC can be defined as the investment practice of directly investing corporate funds into external startups (Chesbrough 2002). A clear distinction between the two types of VC would be that an IVC would invest a collective of private capital from different entities, whereas the CVC will invest the firm's own funds directly, or colloquially referred to as investing from the balance sheet of the firm.

Corporate venture capital (CVC) started to gain significant interest from the scientific community in the late 1990s and early 2000s. Following a large spree of investments in early 2000 the common view was that the CVCs did not seem to get their investment right. This idea was highly tied to the financial success these investments returned to the firm. However, further research on CVCs in the early 2000s has revealed that CVCs should not be understood as an asset class, but in line with the firm's innovation activities (Chesbrough 2002; Chesbrough & Tucci 2002) Chesbrough argued that a CVC should be understood in the following way:

"While corporate VC investments have generated decidedly uneven financial returns, they should not be judged primarily on that basis. They should be thought of as important ways for a company to fuel the growth of its business." (2002, p6).

Stemming from Chesbrough's statement, this thesis understands CVC as more than just an investment tool for large corporations. CVC may have a wide range of effects on evolutionary economic geography. CVCs may perform as connectors between the firm and the rest of the economic ecosystem. This means its agency extent further than financial returns fro the parent company. So it will focus on understanding its agency in the larger context of evolutionary economic geography. To understand its agency, 6 interviews were conducted with relevant CVC decision-makers to understand the empirical decision-making process. Drawing from evolutionary economic literature as well as CVC literature, this paper will apply the relevant theoretical concepts to understand CVC agency in evolutionary economic geography by asking the question: *To what extent can the decision-making process in corporate venture capital investments be understood from the perspective of evolutionary economic geography?*

Initially, the theoretical framework will be explained. Under the theoretical framework, following a top-down approach, evolutionary perspectives in economic geography will be highlighted, and then concepts of related and unrelated variety will be explored. Then, open innovation theory will be explained. The further need of understanding the CVC agency will be highlighted and the theoretical framework will be explained as the final step. Following that, the methodology will be explored. Then, during the findings and analysis chapter, initially, the findings from the interviews will be explained, and then, during the analysis section, the theoretical framework will be applied to the findings. Finally, the implications of the analysis will be highlighted, before concluding that CVC emerges as a tool or a channel that operates between the parent firm and the rest of the ecosystem, enabling the parent firm to potentially diversify into related sectors. CVC identifys, invests in, and learns from technologies that either can be directly used to branch out into a new and related industry or combined with existing routines and technologies to branch out in a new and related industry.

2. Theoretical Framework

This thesis attempts to understand how evolutionary economic geography perspectives play into the everyday decision-making process of corporate venture capital. Currently, a number

of literature is available both on the evolutionary economic geography side and on the CVC side. However, there is a lack of emphasis on the agency and role of corporate venture capital in explaining core concepts under evolutionary economic geography. Starting point for this theoretical framework is the question *To what extent can the decision-making process in corporate venture capital investments be understood from the perspective of evolutionary economic geography?*

In hindsight, this question is broad and needs to be broken into smaller pieces. The first step in this direction is to understand the different literatures that this paper will be drawing from. The overarching question attempts to draw from two main literatures: Evolutionary economic geography and Corporate Venture Capital literature. Before bridging the two, this section will first explore the relevant concepts.

Under EEG, first, core industries will be covered. Then relatedness and industrial diversification will be explored and lastly, the focus will shift to the concept of open innovation. From the Corporate venture capital literature, external and open innovation and CVC as a diversification strategy will play key roles in explaining empirical practices. It is important to highlight that Evolutionary Economic Geography will play a primary theoretical role in understanding the process of decision-making, while CVC literature will provide the relevant concepts to understand the empirical practices.

The second step will be to start connecting the two literatures through the highlighted concepts and start building the framework that will be used to analyze the interview findings.

2.1. Evolutionary Economic Geography

This section will first begin with a general introduction to evolutionary economic geography, by trying to answer *What is Evolutionary Economic Geography?*

When thinking of a one-sentence, simple definition: Evolutionary Economic Geography is the application of evolutionary economics and economic geography. EEG makes use of core concepts in methodologies of evolutionary economics and applies it to the larger economic geography context (Boschma & Frenken 2006) This organically brings up the question: *What is evolutionary economics?* Nelson et al. argue that evolutionary thinking is rooted in the idea that change driven by innovation is central to modern economics (2018) Building on this argument,

evolutionary economics builds a framework around understanding innovation as the cumulative process of learning new ways to do things (Anderle, 2021; Nelson et al. 2018) Furthermore, evolutionary economics concerns itself with routines. Nelson and Winters (1982) describe routines as organizational skills, underpinned by the division of labor and the division of skills between the workers in a firm. These routines create the basis of competition between firms and the Schumpeterian innovation in return drives new technologies, thus new routines, and not only on production costs like it is assumed in the neoclassical models (Boschma & Frenken 2006) These routines are created in several ways. For example, trial and error play a significant role in evolutionary economics. When a routine fails, the search for a new routine begins. Nelson and Winters (1982) highlight Research and Development as a prime example of trial and error. Authors argue that research and development efforts lead to incremental innovation that stems from the accumulated knowledge of a firm's history.

The second question then is: *how does evolutionary thinking play into economic geography?* Boschma & Frenken offers the following definition: "Evolutionary Economic Geography aims to understand the spatial distribution of routines over time. It is especially interested in analyzing the creation and diffusion of new routines in space, and the mechanisms through which the diffusion of 'fitter' routines occur" (2006, p278). This description sets up the base for a clear distinction between evolutionary economic geography and neoclassical and institutional thinking. Through this, one can argue that the creation of agglomerations is neither a direct result of a rational specific location decision like it would be argued in neoclassical thinking, nor directly related to the local institutions like it would be argued in institutional theory (Boschma and Frenken 2006).

In evolutionary economic thinking, agglomerations are the results of further growth following positive feedback processes of firms in given locations (Arthur 1990). Agglomeration economies can be defined as one or more firms that benefit from being in a given local (Frenken, Oort & Verburg 2007, p687). In a given location, some firms may become industry leaders due to a number of different reasons, while others fail and have to exit. Successful firms will create successful spinoffs and these spin-offs will create further success. Potter & Watts argues that the spin-offs will inherit some of the knowledge and routines of the parent company and thus be able to have the likelihood of higher chance of success (2011). This cycle will lead to path dependency as more and more successful spin-offs tied to the main firm will solidify their

presence in space, emerging as a regional leader and solidify both the firms and the industries settlement in the region (Klepper 2002). A secondary explanation for agglomerations is the solidification of an industry in a region due to knowledge spillovers. Firms interact at a local level in terms of routines. The success of a firm in a region will lead to a spillover of knowledge leading other firms to replicate similar success. This will also create an agglomeration economy (Boschma and Frenken 2006).

Two key concepts stem out of this evolutionary thinking in agglomeration economies. First is the creation of core firms in a region. Further, the company and its spin-offs prove successful, the company becomes more and more embedded in the DNA of the region. More success leads to even more success, and the firm becomes embedded further. Similarly, more knowledge spillovers and spillover of routines will strengthen firms at a local level building a similar cycle of success and more embeddedness. Following this basic description, this section will deep dive into *path dependency, related variety and industrial diversification, and open innovation.*

According to Boschma and Frenken, path dependency is a fundamental part of the new turn in economic geography, taking center stage in evolutionary economic thinking (Martin 2010): "the current state of affairs cannot be derived from current conditions only, since the current state of affairs has emerged from and has been constrained by previous states of affairs. Evolutionary theory deals with path-dependent processes, in which previous events affect the probability of future events to occur." (Boschma and Frenken 2006, p280–81). Despite agreements on path dependency theory's presence in understanding regions' industries and experiencing lock-ins, authors such as Amy Glasmeier (2000) and Ron Martin (2010) have questioned the extent of its effects. Ron Martin in his Roepke Lecture in Economic Geography addresses a new way of thinking about path dependency. He initially argues that path dependency is a misunderstood or even misused concept. He forms his argument around the fact that the canonical model failed to understand the complexity of the regional dynamics in an evolutionary process (Simandan 2012). Then he continues to explain the need for rethinking the canonical model of path dependency (Martin, 2010).

The canonical path dependency model can be explained in the following way: The initial location of a firm's success is dependent on a historical accident or a random chance. This is followed by early path creation through location selection in the creation of autocatalytic

processes. In other words, agglomeration economies start forming. Then through increasing returns, path lock-in occurs. Then through an external and/or unexpected shock, the agglomeration economy destabilizes, leading to a potentially complete disappearance of the industry, or in other words de-locking Martin (2010). Simandan (2012) argues that the specific way of *casting* fails to capture the complexity of dynamics at a regional level. Instead, Simandan (2012) further states that Ron Martin offers a less restrictive model that can be further improved to understand the adaptation that agglomeration economies go through in path dependency. Martin forms his model around the idea that firms respond to external pressures at different rates and capacities. So both change and adaptation can occur. Even a highly specialized local economy can link to or be linked to another to a degree that would determine the adaptation process which might ultimately lead to the creation of alternative economies or new pathways. In this model, pre-formed technological presence leads to intentional experimentation (or competition) that leads to path creation followed by path development through increasing returns. However, the key differentiator is the next two potential options. Martin's approaches' proves less restrictive following the path development by either continuing to a stable state through reinforcement or a dynamic state of path evolution and adaptation. As a result, the local agglomeration either reaches *technological stasis* or has to eventually adapt to shifting paradigms and regardless of which, a new cycle begins. (Martin 2010) This understanding of path dependency will be employed in this thesis as corporate venture capitals become tools in adapting to external pressures and providing continuity to core firms in complex economies through either adapting to technological shifts or creating new pathways in the process. This thesis will use CVCs agency in a continuous path dependency process where CVC proves to be one of the complex tools that firms use to respond to external pressures and local competition at a firm level.

2.1.1. Industrial Relatedness

Building upon path dependency, industrial relatedness plays a key role in explaining the development of an industry in a given region. Considering Martin's continued description of path dependency, the firms will diversify into new branches or industries to offset the decline in their economies. Firms will use diversification as a tool to respond to external destructive pressures. In their article *How do Regions Diversify over Time?* (2011) Neffke, Henning, and Boschma build

around the idea that from an evolutionary perspective, industries are likely to diversify into industries that are related to pre-existing industries in a location. Firms' ability to diversify into new industries plays a key factor in adapting to creative destruction (Schumpeter 1939) Several studies have covered the relationship between industrial relatedness, regional economic development, and survival rates of agglomeration economies. Neffke, Henning, and Boschma (2011) make use of a number of case studies to illustrate this point. For example, Boschma and Wenting (2007) in their study of the spatial evolution of the British automobile industry have pointed out that during the early development phase, the firms that were founded by or developed with craftsmen who had previously worked with related industries have had a higher survival rate. Similarly, Frenken, Van Oort, and Verburg (2007) have shown that a higher degree of relatedness led to a higher rate of local knowledge spillovers. Consequently, these regions that showed high levels of relatedness were associated with high levels of employment growth. In their article, *The Structure of the product space and the Evolution of comparative advantage* Hausmann and Klinger (2007) showed that countries that have specialized in the densely connected parts of the product space have shown more economic growth. Frenken and Boschma later coined this process as regional branching, where industries diversify into technologically related industries (2007) Having presented these examples, this section will dive further into industrial relatedness and highlight several concepts under industrial diversification: *related and unrelated variety*, technological relatedness, product relatedness, and *skill relatedness*.

Before exploring related and unrelated variety, an important concept to define is the *Jacob externalities*. Krugman (1991) being inspired by Jane Jacobs's work, has defined the variety as a source of regional knowledge spillovers as the *Jacob externalities*. Frenken, Van Oort, and Verburg (2007) argue that Jacob externalities are measured best when there is related variety present. They proceed to highlight three different types of relationships between variety and economic development. The first relationship is based on the idea that skill transfer occurs between sectors as well as firms. So a certain constellation of sectors in a region will experience higher growth rates if these sectors are to complement each other. The second idea highlights the unrelated variety of employment. Highly specialized regions are at a higher risk of unemployment as a result of a demand shock. The third and final type is based on Pasinetti's notion that economies that have not diversified in the long run will experience structural unemployment and economic growth will eventually stagnate (1993). Frenken, Van Oort, and

Verburg summarize Pasinetti's theory in the following way: Diversification, in the long run, is necessary to absorb labor that has been made redundant in the pre-existing industry. This is usually the case for the labor force in rural areas as new ideas are likely to be formed in urban settings, and as a result migration from rural to urban to satisfy labor needs occurs (2007).

Having identified three types, the most relevant relationship to understanding corporate venture capital decision-making will be the first and the second type, as the third type or variety, economic growth relationship, will fall outside of the theoretical framework. Acknowledging that CVCs may become a tool in both related and unrelated variety when applied in the analysis, the following questions gain importance: *Which variety is more desirable for stability and economic growth, related or unrelated?* This question gains importance as the desirable outcome for core companies is to provide and be present in stable and expanding economies. Frenken, Van Oort, and Verburg respond to this question in the following way:

"The effects of related and unrelated sector variety, therefore, are expected to differ. Unrelated variety protects a region best against external asymmetric shocks in demand and thus against rising unemployment. By contrast, related variety in a sector is expected to be beneficial for Jacobs externalities in the form of knowledge spillovers, thus enhancing growth and employment″ (2007, p688)

Building on top of the assumptions relating to unrelated variety, there is an argument that suggests combinations of unrelated skills and capacities may lead to new technology and routines and thus innovation (Boschma 2005; Nooteboom et al 2007, Nooteboom 2000). Boschma further argued that *proximity* is a key concept for understanding how these interactions may occur. He lists 5 types of proximity: *cognitive, organizational, social, institutional,* and *geographical* (Boschma, 2005) Only cognitive proximity and institutional proximity will be addressed in this paper due to the scope of the research and length restrictions. Initially, cognitive proximity is built on the idea that knowledge is dispersed among firms (Antonelli 2000) and this knowledge is needed to be brought together. This process is not solved by only having access to knowledge due to its tacit nature. So the capacity of actors to learn and absorb becomes significant for knowledge to be transferred, Nooteboom et al. highlight this relationship as *cognitive distance* (2007).

Boschma, building on the notion of *optimal cognitive distances*, argues that the cognitive base should be close enough for firms to learn from each other, or in other words, people sharing

a similar knowledge base and expertise may learn from each other effectively (2005, p.63). In summary, cognitive proximity is a key concept in understanding the communications between different agents, through the distances between their learning and absorption bases. The second type of proximity under the scope of this paper is *institutional proximity*. Institutions can be defined as a set of routines, rules, and laws that regulates interactions between individuals and groups (Edquist & Johnson 1997). Institutions can be enabling or constraining mechanisms for knowledge transfer and innovation. In the case of institutional proximity, it can either also either be an enabling factor by providing stable conditions for interactive learning, or a constraining factor slowing collective learning (Boschma 2005). These types of proximities can be highly intertwined or supported by each other. In the scope of this paper, institutional and cognitive proximity and their relationship will be explored in the analysis section.

Moving towards related diversity, Boschma (2017) argues that regional diversity claims that similar activities demand similar resources and highlights 3 key concepts: skill relatedness (Neffke & Henning 2013), technological relatedness (Breschi et al. 2003), and product relatedness (Hidalgo et al. 2007). Focus on relatedness has mostly been understood as "similarities between activities that capture the cognitive dimension of capabilities" (Boschma 2017, p352). Boschma continues to raise an issue with such an understanding of relatedness, arguing the need for an increased focus on complementarity in relatedness, which is the need to combine different activities to diversify (2017).

Skill-relatedness is the first capacity to be explored. Frank Neffke and Martin Henning argue that a firm's decision to diversify will be depended on if these choices offer to leverage existing human capital (2013) Authors' main argument can be paraphrased in the following way: A firm is more likely to focus its diversification efforts in line with its human capital. A firm will choose to diversify in a space where it can leverage already existing employees' skills and knowledge. In other words, skill relatedness connects industries (Neffke and Henning, 2013) Authors continue to refer to three sets of perspectives: the market powers perspective, *the agency perspective,* and *the resource-based perspective*. (Neffke and Henning, 2013) Due to the theoretical scope of this paper, only a resource-based perspective will be relevant.

Acknowledging the contributions of Wernerfelt (1984), Barney (1991), Penrose (1959), and Teece (1982), firms have the incentive to leverage on leaving certain resources idle. As resources and services that drive from those resources are differentiated in context, firms can

benefit from driving new services from existing resources. More valuable will be extracted as firms continue their growth by *learning by doing*. So firms will try to identify new activities that require the same or similar resources, which is also referred to as related diversification (Neffke & Henning 2013) The notion laying under this perspective is that learning by doing will lead to creating more value of the same resources. Or in other words, companies may benefit from encouraging workers to create more value through further learning by doing.

Technological relatedness follows the notion of Scott, arguing that firms' technological and productive activities follow a long term path, in other words, firms diversify their technological activity in a *purposeful* way (1993). Breschi et al. (2003) build on this notion, highlighting that technological diversification is highly related to *knowledge diversification* and points to three categories in understanding technological relatedness: *knowledge proximity, knowledge commonality,* and *knowledge complementarity.* Knowledge proximity concerns itself with intended and unintended learning processes, through either local learning or learning spillovers. Knowledge commonality refers to the use of the same or similar type of knowledge on a given technology. Knowledge complementarity refers to the collective knowledge that is required to introduce a certain type of new product. The core assumption in knowledge complementarity is that certain knowledge is related due to their need to be used together. Breschi et al summarize these three types of knowledge in the following way: "In sum, technological relatedness is due to learning processes (unintended in terms of spillovers and intended in terms of local learning) and knowledge links (due to the scope, complementarity or generic nature of knowledge)" (2003, p71).

Third, Hidalgo et al. highlight the *product space*, the notion that certain, more sophisticated products will be located in densely connected areas whereas less sophisticated products will be less in the less connected periphery (2007). The authors use a simple forest metaphor to explain the product space. The metaphor is explained as the following: products are considered trees, and monkeys are considered firms. A location is made of monkeys who wish to exploit the trees. In less connected parts of the forest, monkeys would have to jump from one tree to exploit different and more fruits. Availability and access to more fruits are understood as economic growth. In dense parts of the forest, monkeys are able to jump from one tree to the other easier, however, in less dense parts, monkeys are limited. The need for longer jumps in less dense parts of the forest refers to deploying capital to goods that are different from the firm's

current products. The close connectedness between trees refers to connectivity or relatedness between labor, capital, technology, value chain similarities, etc… This relation is called *proximity*. In other words: "If two goods are related because they require similar institutions, infrastructure, physical factors, technology, or some combination thereof, they will tend to be produced in tandem, whereas dissimilar goods are less likely to be produced together." (Hidalgo et al. 2007, p484) Proximity can be understood as the capability of a local to build new goods and services depending on their ability to produce other goods and services. Having studied the impact of product space Hidalgo et al. (2007) have concluded that if countries diversify into the connected product to a degree, they will reach the richer, more dense part of product space, whereas a disconnect between products will lead s country to reach the poorer, less dense parts of the product space.

In order to understand regional diversification, this section initially addressed related and unrelated varieties to understand that related variety is desirable for regional diversification. Then the underlying factors of industrial diversification: skill relatedness, technological relatedness, and product relatedness. These concepts are the building blocks of regional diversification, so at a micro level, firms will try to achieve diversification through these notions.

2.1.2. Open Innovation

Open innovation started taking its place in the literature in the early 2000s. Henry Chesbrough's *The Logic of Open Innovation: Managing Intellectual Property* (2003) has paved the way for open innovation to be embedded in both corporate strategy and innovation studies literature. This section will dive deeper into the open innovation literature, building around Chesbrough's work, and start to shift from an evolutionary economics perspective to firm-level strategy theories, covering the open innovation and firm-level strategy relation and the *real options* theory.

There has been a shift in the *commercialization of industrial knowledge*, from closed innovation to open innovation. The concept of closed innovation is built around the idea that controlled innovation is successful innovation. This means innovation should occur at the individual firm stage, isolated from other firms. A firm should be able to develop the idea

through its own *research & development*, commercialize it, finance it, and support it on its own. Chesbrough (2003) highlights the underlying logic of closed innovation in 6 points.

1. "Best and smarties people should work for the firm.
2. New products and markets should be discovered within the firm.
3. If the firm discovers the idea itself, it will reach the market first (first mover).
4. The first mover will win the market.
5. If the firm leads the market in R&D and the firm will lead the market as best and most ideas will be developed by that firm.
6. Intellectual property should be controlled by the firm to prevent other firms from profiting from it." (2003, p33-34)

However, certain factors have started disrupting this virtuous cycle. Increasing mobility of high skill workers started working more knowledge and skill spillovers. Shorter go-to-market periods and rapid commercialization of new technologies have shortened the life of technologies and increased outside innovation. Consequently, R&D cycles have started to prove less and less profitable and efficient. Chesbrough argues that a collection of these processes has led to what he calls the *open innovation paradigm*. He describes the open innovation paradigm in the following way: "Open Innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology" (2003, p37). In the open innovation model, or as he called the *open innovation funnel*, firms make use of externally driven innovation and go-to-market strategies instead of attempting the complete the whole pipeline of innovation created internally. One of the most predominant results of this process is the *startup company*. So there has been a sharp shift in the 6 underlying logics of closed innovation:

1. "A firm should work with smart and bright people, inside and outside of the company.
2. External R&D will create significant value and internal R&D will claim a portion of the value.
3. Firms do not have to originate the research to reap its value.

4. A stronger business model may prove more significant than being the first mover in a market.
5. Best use of ideas, both internally and externally, will lead to the firm winning the market.
6. Firm should buy other intellectual properties if it helps further the business model of the firm, so firms should benefit from other intellectual properties" (Chesbrough 2003, p38).

To further the open innovation literature, Wim Vanhaverbeke and Myriam Cloodt (2014) highlight the need of connecting open innovation theory with the already existing firm theories. Open innovation is a practice based approach and it needs to be understood at the strategy level of the firm. Firms practicing open innovation make constant choices on what technology or knowledge to develop internally and what to develop externally. This decision is directly related to the firm's ability to nurture these developments. While some resources will be available, others will need to be procured externally, which means that resources and competencies are major drivers of open innovation (Vanhaverbeke & Cloodt, 2014) Therefore open innovation literature can be tied to the resourced based view (Vanhaverbeke & Cloodt, 2014; Wernerfelt 1984) A number of sub-theories have been developed to understand the further interaction between the resource-based view and the open innovation practices of a firm, however, such specifics will not be covered in this thesis.

A secondary connection on the strategy level stems out of innovations' risk-laden nature. Innovation is understood as a high risk activity and requires a series of investments. Each round of investments will require a larger commitment. To reduce the uncertainties, or *de-risk* the bet, companies can make small, initial investments through multiple options on a technology. This gives the firm the opportunity to further pursue the development of the technology without the obligation to do so (Vanhaverbeke & Cloodt, 2014; Amram & Kulatilaka, 2000) Vanhaverbeke and Cloodt argue for the benefits of open innovation over closed innovation on the real options theory:

1. Early involvement in new technologies;
2. Delayed entry or delayed financial commitment to a technology;

3. Opportunity to early exit and realize monetary value from the technology,
4. Opportunity to benefit from delaying an exit. (2014; Vanhaverbeke et al. 2008)

Open innovation on a firm level provides opportunities for firms to diversify into related industries. Open innovation can be seen from a resource based view, which may restrict the firm to diversify in what it has internally or what it can procure externally. Real options theory provides the benefit of deploying these resources to several options, in the chance that one or multiple of these options succeed, diversification in a related technology, product, or on a large scale a new industry. Zooming out from the firm level, on the regional level, collective actions on open innovation, in an agglomeration economy, will create the potential to diversify into related industries, creating the possibility of new path creation. Referring to the previous point, related variety is described for regional diversification. So far, this section has started with a broader perspective on the regional level and the evolutionary perspective on regional development through related and unrelated variety, skill, product, and technological relatedness. Later, it started the transition to firms level actions, through open innovation and real options theory to understand the building blocks of regional diversification. The next part of this chapter will draw from corporate venture capital (CVC) literature.

2.2. Corporate Venture Capitals

In this section, the paper will zoom in further on the firm strategy level, focusing on the *nurturing of innovation*. CVCs will be highlighted as a key resource in nurturing innovation with the idea that this *hybrid model* provides "corporate laboratories and venture backed startups" (Chemmanur et al. 2014, p 2435). Then dive into real options theory within the CVC literature and explore the advantages of corporate venturing through open innovation practices (Vanheverbeke et al. 2008) Following real options theory, core competency will be defined and finally, spin-offs, spin-outs, and spin-ins will be introduced as they will be playing a supporting role.

Having started in the 1960s, CVCs have grown significantly to take on approximately 15% of all investments in the venture capital industry by the end of 2011 (Chemmanur et al. 2014). CVCs' advantages in nurturing innovation still remain relatively unexplored. Chemmanur, Loutskina, and Tian (2014) take a deep dive to understand more about CVC and innovation

creation. CVCs are created as subsidiaries of large corporations, giving them the resources to have long investment horizons and a number of objectives whilst investing. CVCs not only pursue financial value like other venture capitals but also strategic value to the larger corporation. CVC employees also lack the financial compensation VC employees receive from pure financial success (*carry*), instead, they get compensated by fixed salary. Chemmanur et al. argue that long investment horizons, strategic and financial targets, and lack of financial compensation for successful investments have put CVCs in a position where they can experiment and take different risks compared to VCs (2014). So having examined the innovation output of CVC-backed companies going to *initial public offering* (IPO), the authors conclude that CVC has a superior ability to nurture innovation and potential to select entrepreneurship with higher innovation potential.

They continue to highlight 2 key mechanisms that lead to better nurture innovation: (i) firms that have a better technological fit to the parent firm of the CVC has higher innovation potential as CVC's superior technology knowledge allows them to better evaluate domain related innovations and firm founders and strategic partnerships between the parent company will lead to overcoming of potential problems such as taking a technology to market or other commercialization aspects. (ii) CVC has a higher tolerance for failure which leads to a larger ability to take risks or tolerate failures throughout the development of the *portfolio firms* (firms that have received investments from CVCs) (Chemmanur et al., 2014). So, the greater technological fit between entrepreneurial firms and parent firms of CVCs as well as a higher tolerance for failure leads to higher innovation output by entrepreneurial firms.

Revising the 4 key advantages of real options theory on firms practicing open innovation (Vanhaverbeke et al. 2008; Vanhaverbeke & Cloodt, 2014), Vanhaverbeke, Van de Vrande, and Chesbrough connect corporate venturing as open innovation to real options theory and further argues that firms have to learn new skills and routines to develop *real options potential*. They continue to draw a rationale between real options and organizational learning, arguing that real options lead to learning and competence building. This means that firms need to develop new routines and skills (2008).

Before concluding the theory chapter, it is important to introduce all the concepts that will be presented in the analysis section. This paragraph will include definitions for disruptive and incremental innovation, core business, spin-outs, spin-offs, and spin-ins:

First, disruptive innovation theory was developed by Christensen in his book *Innovators Dilemma* (Christensen 1997). Christensen argued that disruptive innovations were newly introduced, initially inferior technologies compared to mainstream technologies in the most important performance dimensions for the mainstream customer. He argued that disruptive innovations initially address specific niches that valued non-mainstream values until it develops to a point where they satisfy the main needs of mainstream customers (Yu & Hang 2010). Christensen's theory has been heavily discussed in the literature since (Adner 2002, Christensen & Raynor 2003, Danneels 2004). On the other hand, incremental innovations can be briefly designed as minor adjustments in mainstream technologies (Dewar & Dutton 1986; Munson & Pelz 1979).

A core business, or a *core competency*, can be defined as a primary competency of a firm. The firm leverages this competency to compete, however, the competency might be hard to identify due to the firm's products (Mooney 2007; Prahalad and Hamel 1990) It is further argued that these competencies become the building blocks of strategy and the firms that choose to diversify, firms should be benefitting from these building blocks (Mooney 2007; Collis & Montgomery, 1995; Frery, 2006; Markides, 1997) Second, a spin-out can be defined as an employee leaving their current firm to develop an idea or a technology in an independent venture (Nikolowa 2014). Nikolowa supports this statement by referring to the studies done by Bhide (1994) and Gompers et. al. (2005). Bhide finds that 71% of all founders in their study have either replicated or improved an idea they have gained through their previous employment (Nikolowa 2014, p70; Bhide 1994) The second study found that 45% of venture capital backed companies have spun out from public companies (Nikolowa 2014, p70; Gompers et al. 2005) Spin-off, on the other hand, are one of the many shapes that an internally developed idea or a technology takes. Spin-offs are developed internally in a group, later to be set up as a subsidiary firm to the parent company (Nikolowa 2014) Lastly, spin-ins can be defined as a technology or an idea that was developed externally, being incorporated into the firm.

2.3. Theorethical Framework Summary

Connecting the evolutionary economic perspective with CVC literature, this section has provided an overview of key concepts under diversification at a regional level, then continued to narrow its focus towards the firm level by exploring open innovation through an evolutionary economics perspective. Then this paper drew from real options theory in relation to open innovation from the CVC literature. This thesis aims to address the gap between evolutionary economics geography thinking and CVC activity, and offers the following bridging between literatures:

CVC activity can be understood as a building block of regional-level diversification. Through real options theory and open innovation, CVCs explore external innovation, nurture it and learn from it. On the collective level, this can be understood as skill, technological, and product relatedness. As the parent firm nurtures these innovations, the success of the entrepreneurial company may lead to the creation of new pathways that are related to the parent company of the CVC, which may, on the collective level, lead to new path creation and further path dependencies.

The following section will analyze the empirical findings through the theoretical framework that drew from evolutionary economic geography and corporate venture capital literature.

3. Methodology

This section explains the choice of methodology and analysis. Initially, the research design will be explained. Under this subsection, the need for qualitative research, the specific choices for semi-structured interviews. Second, there will be a deep dive into data collection. Under this subsection, the main focus is to understand the *who and* the *why* of the interview process. Third, in data analyses, the specific tools used and a summary of key themes will be explained. Under the fourth subsection, an overview of the challenges and limitations of the interview process will be explored and lastly, ethical considerations will be noted.

3.1. Research Design

This project will employ qualitative research methods. Decision-making by nature is a complex process. It is multilayered and influenced by several factors. However, when applied to the context of *venturing*, there is a lack of deep exploration of certain agents' processes. Due to its position in the socio-economic structures, the Venture capital industry has been explored mostly as a quantitative area where numbers seem to have higher value, and the qualitative factors were assumed to be built into results. However, in real life, more and more venture capitalists have started paying attention to the qualitative factors that are going into making an investment decision. Despite these factors already being there, they received limited recognition for their importance. Just like any other decision-making process, corporate venture capital decision-making is highly complex and requires an in-depth qualitative study. To be more specific, this thesis studies the agency of a firm-level player in regional diversification. However, there is a gap in the Evolutionary Economic geography literature. There have been studies and modelings on what quantitative factor makes an investment more attractive in various literature and areas such as finance or economics, which can both be applied to and be adopted by corporate venture capital decision-makers. However, the qualitative aspect remains underdeveloped, specifically from an evolutionary economics perspective. Bearing this in mind, if I were to employ a quantitative study, I would have failed to capture the agency of corporate venture capital decision-making on a border socio-spatial level. As Hay and Cope describe, qualitative research aims to understand how social actions create spaces, and in return, places constrain social actions. They continue to deploy a key question: "What are the structures of society and how are they created, maintained, legitimized, and/or resided?" (2021, p4; Sayer 1992) On a border level, regional economic activity is produced, maintained, and reproduce through the actions of a vast number of players. Each of these players has unique roles and effects, and their agency affects how an economy is produced in a region. Corporate venture capital is one of these key actors, and to better understand its effect on the broader level and contribute to the evolutionary economic geography literature with its agency, qualitative research methods prove the best fit.

As this research aims to bridge a gap between evolutionary economic geography and corporate venture capital literature, it has benefitted from interviews. Specifically, semi-structured interviews were used. Initially, the reasoning behind the *why* was quite

straightforward. My goal was to understand real-life practices in the field. So I directly went to the source, and asked the decision makers of corporate venture capitals initially *what* they did and then *why* they did it. Of course, this is an extremely simplified way of describing the thinking, behind the interview questionnaire, however, this was the starting point as I wanted to understand their normal practices and their thinking process without the influence of evolutionary thinking. When choosing an interview type, I decided that semi-strucutred interviews would be the most appropriate type for my specific goal. With each decision maker, there are a number of factors that affect their actions, ranging from their individual academic and personal background to limitations that the parent company imposes on its venture capital arm. So, I wanted to have the flexibility of deploying questions that go beyond my interview guide to some extent, while still following an ordered interview guide. As Dunn describes (2021) in semi-structured interviews, the interviewer can prepare an ordered set of questions but still can go beyond the questionnaire if needed or sees fit.

When selecting participants, I followed a two-stepped approach. Initially, to understand path dependency and innovation in a region, one needs to focus on core firms in the region that have been the key driver shaping the regional economy. These firms' approach to open innovation and deploying their CVC affects how they adapt to innovation and potentially play a role in evolving the local economy. So to collect the most relevant data for the evolutionary economic geography thinking, I identified the companies that operate in Norway and had a CVC arm, using *Norsk Venturekapital Forening* (Norwegian Venture Capital & Private Equity Association). Given the small number of CVCs (compared to larger venture ecosystems such as Sweeden or the US) and the lack of an in-depth study on these CVCs, I started listing the largest companies by market share. The second step was to understand who to talk to in these organizations. Given that the main goal was to be able to understand the perspective of decision-makers, I started reaching out to key decision-makers such as investment managers, and partners. It is important to note that different CVCs have different structures, so I did not limit my scope to a certain role such as the *partner* but rather by their duty of the positions, and choose the decision makers as my target interviewees.

Previous to the data collection, I made use of two different sources to prepare. First I benefitted from several scholarly articles that focus on evolutionary economic geography in general (Boschma & Frenken 2006), path dependency (Martin 2010), related and unrelated

variety (Frenken, Van Oort and Verburg 2007), skill relatedness (Neffke & Henning 2013), technological relatedness (Breschi et al. 2003), and product relatedness (Hidalgo et al. 2007). These articles have prepared the evolutionary economic base of my theory. Also, due to my current job at venture capital, I intuitively started learning about the empirical practices in the field. I have been exposed to what people who work in venture capital think about certain domain relations and quantitative and qualitative factors when making an investment decision. However, it is important to highlight that my work is with *independent venture capital* (IVC), despite being exposed to certain knowledge on both IVC and CVC during this time, I have not worked with a CVC and despite some similarities, there are differentiators between how each deploys their resources.

During the design of this research, data privacy, and security were key factors. Each step from picking the research methods to preparing the questionnaire and information letter was done in line with Norsk Senter for Forskningsdata (NSD). Once the research design was complete, I send an application to make sure that all preparation was done in accordance with NSD. Additionally,

The following sub-section will dive deeper into the data-collection phase.

3.2. Data Collection

As I touched upon previously, my selection criteria for interviewees was the position they held in a large corporate that operated in Norway, so specifically, a large company by market share and their CVC arm decision maker. Due to my work, I was lucky enough that I started with a potential reach to these candidates. As I work in an IVC, that focuses on early-stage investments, the firm has relations with some CVCs to an extent. So I started my reach-out process through my work email account hoping that it would create more credibility for my thesis, I mainly used email as the initial point of contact and then followed up on both mobile and email. Referrals both initially from my employer and then from the interviewers have played an important role. As a result, I have performed 6 interviews. Each interviewer has signed the letter of information electronically and has requested that they are not quoted directly but allowed to share the company name. The main reason behind this wish is the complex legal corporate processes that any specific information that will be directly quoted requires extensive study by the firm itself to understand its potential implications on the firm. As a result, in line

with the interviewees' wishes, I will only name the companies and the sectors they operate in, and not the names of the decision-makers. This is in direct relation to their consent on their personal information.

Of the six interviews that were conducted, the following breakdown highlights the name of the firm, the name of the CVC arm, and the sector(s) they operate in:

Firm Name	**CVC Name**	**Sector**
Yara International	Yara Growth Ventures	Energy and industrial technologies
Aker ASA	Runway Fornebu	Energy and industrial technologies
Equinor	Equinor Ventures	Energy and industrial technologies
DNB	DNB Ventures	Service
Posten/Bring	Bring Ventures	Service
Eviny	Eviny Ventures	Service

Each interview followed a similar order, with some exceptions since the semi-strucutred interview was employed. Interview questions, not necessarily explained in the question format here, followed this order: (i) the role of the CVC arm in overall corporate strategy; (ii) the individual potential of a startup compared to the overall strategic value to the parent company; (iii) investments in spin-offs and spin-ins; (iv) specific mandates that are imposed by the parent company to CVCs and challenges that come with being a part of the parent company; (v) key qualitative factors in analyzing a startup; (vi) key reasons on a negative investment decision; (vii) advantages and disadvantages of CVC when compared to ICSs; (viii) CVCs approach to startups

that develop disruptive innovation in the market parent company is in. Each interview lasted for 30 minutes.

Despite the limited number of interviews (6) it is important to note that the Norwegian Corporate Venture Capital industry is limited in numbers. So to ensure *rigor*, the firms selected are based on their size and market share cover. In this case, interviewing smaller *family office investors* would have led to a disconnect between my theoretical framing and research design. Each of these firms is strategically selected as they can be considered *core* firms to the Norwegian economy and they operate in *core* sectors such as energy, finance, and chemical industries. As a result, with the strategically selected participants, I was able to cover a significant fraction of the market and reached saturation on certain answers such as the importance of *strategic value* and *key qualitative factors in analyzing startups*. It is important to note that two other significant firms that I could not get the opportunity to interview due to logistical reasons are DNV Ventures and Schibsted Ventures.

These interviews have been conducted both in person and online. 5 of the interviews were conducted online through cryptic software and 1 interview was conducted in person. All interviews were recorded with the University of Oslo's *Diktafon* app to ensure that all data storage is in line with the *General Data Protection Regulation* (GDPR). All recordings are only uploaded to Nettskjema to ensure the protection of data. Of the participants, 5 were male, and 1 was female. The demographics and diversity aspects will be further discussed in the challenges and limitations sub-section.

3.3. Data Analysis

During data analysis, the first step was to transcribe the interviews. I manually transcribed the data that was hosted in Nettskjema servers. To minimize human error, I also used *Autotekst* from UiO. This software allows secure transcribing of data up to red level data and can transcribe files from Nettskjema. After transcribing, I started the coding process. For coding, I used *Obsidian* as the software. The reason behind choosing this software is: Obsidian provides end-to-end encryption, as well as local storage of notes. During the coding process, I initially started by breaking down data by the questions I asked. Since I followed a semi-structured interview and asked the same general questions to each interviewee, I was able to create a logical breakdown of their answers. Under each question, I highlighted the common themes, and add

quotes under each theme. Obsidian is also a relation-based software, which allows one to create relations between two parties. This proved particularly useful as I supported each common theme with quotes and then connected common themes to key concepts from the literature.

In the analysis section, I will explain my findings in detail, however, I will dedicate the rest of the data analysis section to highlighting key findings. As I previously highlighted, while coding, I gathered common concepts under the questions to have a clear structure. When looking at the overall role of the CVC arm in the general company strategy, *diversifying* into industries that are related to the core business of the firm to a degree was the first key finding. Other key concepts included outsourcing innovation that cannot be developed in-house for various reasons and creating financial returns. When comparing the individual value of a startup compared to the strategic value, there were two key themes: investing with a strategic focus, and following a balanced approach. On the key qualitative factors in investment decisions, two key themes emerged. The most frequent answer was the *team*. Following the team, the *strategic fit* was the second most frequent answer. The team has been brought up by each interviewee as one of the most important qualitative factors. This has emerged as such a dominant theme that I will argue that in terms of key qualitative factors I have reached saturation. Others such as market and business plans were among the highlighted themes. Concerning the previous question, qualitative factors for a *no-investment* decision were explored. Falling out of the scope of the firm and insufficient team competencies were the two most common themes. Only the key findings have been discussed in this paragraph and the analysis section will provide an in-depth overview of all data gathered through the interviews and all findings as well as highlighting certain nuances.

3.4. Ethical Consideration and Challenges

In the last section of the Methodology chapter, I will explain ethical considerations as well as the challenges I have faced. I will touch upon *critical reflexivity* & *positionality*, *studying up*, and challenges related to the demographic distribution of the interviewees as well as the small sample size in location.

While designing research it is important to understand that we as researchers do not move in bubbles that are isolated from outside effects. As Catungal and Dowling describe, the researchers need to understand that they are active participants in the research process through their backgrounds. They refer to this process as being reflexive (2021). England also describes

this process as self-conscious observation of self as research during the process (Catungal & Dowling, 2021; England 1994). Highlighting this, I acknowledge that my personal background affects my process of research. As a white male who does not speak Norwegian in Norway, I understand that my interactions with my interviewees are being affected by this fact. Additionally, I am studying up, and reaching out to those who are in a higher position of power (Catungal & Dowling, 2021). This creates a key challenge such as access to interviewees. I have reached out to 9 candidates and to receive an answer from them I used my personal connections through my professional background as referrals. This is important to acknowledge under my position, as I may have not received responses if I were not connected to people who hold high professional titles. From my outreach, I got 6 responses. This is a key example of how I experienced power relations throughout my research process. In terms of the demographics of my interviewees, I have observed that there is an uneven distribution. It is important to acknowledge that in the CVC industry, there is an uneven distribution in terms of gender.

Finally, each interviewee received an information letter that they signed, clearly stating their rights in line with the GDPR. All interviewees have asked not to be directly quoted however, they approved that their titles and company names can be disclosed in the research.

4. Findings & Analysis

The following chapter will present the findings of the fieldwork. During this research, 6 interviews with 6 corporate venture capital decision-makers were conducted. The goal was to answer the question: *To what extent can the decision-making process in corporate venture capital investments be understood from the perspective of evolutionary economic geography?* To address such a broad question, this paper initially explored evolutionary economic geography literature, drawing from concepts such as relatedness, variety, and open innovation, and CVC literature drawing from open innovation and real options. With the goal of exploring the CVC agency in evolutionary economic geography literature, and aiming to understand the role of EEG in empirical decision-making practices for CVCs, in the theoretical framework, this thesis proposed the following idea: CVC activity can be understood as a building block of regional level diversification. Through the empirical findings, this thesis will argue:

Related variety, industrial diversification, and open innovation theories can be combined to understand the CVC decision-making processes. CVC's decision-making process is heavily

influenced by the overall parent company strategy, in most cases, CVCs will act with the underlying thought to diversify into related industries. In return, new pathways may be created or firms' path dependency may be furthered.

This argument will be unpacked in 4 sections:

1. CVC's position in the larger strategy of the parent firm;
2. Key qualitative factors CVCs look for in positive investment decisions.
3. CVC and IVC, the comparative advantage of CVC's ability to nurture innovation due to its position;
4. Firms' approach to adopting disruptive innovations through CVCs.

The initial section will explore how CVCs are positioned in the larger corporate strategy. There are 6 key points that are raised in this subsection. First, CVCs will aim to invest in new ideas or technologies that are related to core business units or the parent firm. Second, CVC emerge as a tool to outsource innovation with the assumption that not all innovation can be developed in-house. Third, CVC might be a part of a larger strategy in boosting internal innovation. Fourth, CVCs identify and invest in companies that may create future value for the parent company in several ways. Fifth, CVCs invest in firms that will generate financial returns for the parent company. Lastly, CVCs can be deployed as a tool that enables communication between startups and large firms. This subsection will argue that CVCs are utilized as tools in embedding further resources for the parent firms in certain paths or diversifying into related paths, strengthening the embeddedness of the core firm in the region.

The second subsection will explore the key qualitative factors. When making an investment decision, CVCs look at a number of factors, this section will explore the dominant factors that have emerged throughout the interviews. These factors are *team, uniqueness, strategic fit, business plan, and market*. This subsection will then explore the conditions that may lead to a negative investment decision before providing a summary.

The third subsection will dive into understanding what CVC can offer and how it attracts startups as the startups' demand for CVCs is as important as CVCs' goal to find and invest in them. The advantages of CVC compared to an IVC will be explored, highlighting that CVCs may provide high domain expertise and access to markets. This section will note that CVC also faces disadvantages such as a negative reputation among startups due to long decision-making cycles and startups' wish to not be associated with multinational companies.

Lastly, CVCs' role in disruptive innovation will be explored. In this subsection, two key findings will be highlighted: adopting disruptive innovation; not investing due to the high risk of conflict.

In the first part of the analysis section, the findings from the interviews will be explained. Then, in the second part, related variety, industrial relatedness, open innovation, and real options theory will be applied to empirical data to explain the role of the evolutionary economic geography approach in underpinning the CVC decision-making process, as well as being directly influenced by it on a regional level.

4.1. Findings

4.1.1.1. CVC's Position Under the Parent Firm

As has been summarized previously, there are 6 key findings on the CVC's position in the larger corporate strategy:

1. CVCs will aim to invest in new ideas or technologies that are related to core business units or the parent firm;
2. CVC emerge as a tool to outsource innovation with the assumption that not all innovation can be developed in-house;
3. CVC might be a part of a larger strategy in boosting internal innovation;
4. CVCs identify and invest in companies that may create future value to the parent company in a number of ways;
5. CVCs invest in firms that will generate financial returns for the parent company;
6. CVCs can be deployed as a tool that enables communication between startups and large firms.

This section will dive into each of these findings and then further explore 3 more topics that relate to CVC's position: the individual potential of a startup compared to the value it provides strategically; CVC's approach to spin-ins and spin-offs; challenges from the corporate side.

The first key finding is that CVCs aim to invest in ideas and technologies that are related to the larger firms' core business, at least to some extent. Following Prahalad and Hamel's definition of core competencies (1990), the initial finding points out to CVCs' interest in

investing in a business that is related to the core business. In the first 4 interviews diversifying through core competencies was the most common theme. 4 of the 6 interviewees have highlighted that a key role of their CVC is to find, understand and invest into *core-related* ideas, technologies, or business models. For the energy companies I have interviewed, two key themes under core-related investments emerged. One company highlighted that the CVC arm was set up so that investments can be made into two verticals the company focuses on as their core business. They further explained that the CVC arm invested in technologies that can further develop those two verticals. Another firm highlighted that they would invest in startups that would further their presence in energy transitions and clean energy, given that their core focus is energy related. So to further grow their core competence, and diversify further into sustainable energy, they would look for investments that either make the technology more efficient or business models that can enhance existing operations. Similarly, an production and heavy industry-focused firm have highlighted that CVC has played a key role in digitalizing in of its core business units. A nuance in this theme was that a company highlighted its efforts to create an ecosystem where its core business will still play a key role, but not necessarily be the center of it. This means that while keeping their core business central to decision-making, they have a higher tolerance for distancing themselves from their core activity to further create an ecosystem around it. Each of these statements can be tied to leveraging existing resources. In this specific case, CVCs are used to further add competencies that are already existing, looking to diversify to related businesses and technologies.

The second point is the use of CVC to outsource innovation. This theme emerges with the idea that not all innovation can be done in-house. To further the innovation related to the core business, firms need to innovate, and due to various reasons such as priorities, capacities, and capabilities, developing an idea or a technology in-house is not always efficient or viable in certain cases. 5 out of 6 interviewees highlighted the use their CVC to look for innovations that can further their core competencies. In this instance, CVC can be seen as a scouting tool to find these innovations and a channel to onboard them to the core businesses. It is highlighted that the CVCs make use of the business units and employees of the parent company such as domain experts or engineers to understand pain points in their businesses or markets. This opportunity allows those CVCs to pinpoint ideas and technologies that can either fix the pain points or make their processes more efficient. Due to their position in the overall parent companies' ecosystem,

CVCs can talk to multiple stakeholders both internally and externally, identify innovation points, scout for them in the market, and establish relationships with them.

Third, CVC can be located in the center of a new strategy that allows the parent firm to boost internal innovation. As it has been noted, firms both develop new technologies internally and externally. The assumption is that both aspects can be combined and firms can learn from each other to innovate further. CVC may find itself as a part of a larger strategy to establish new connections and become a channel to further the learnings. In one of the interviews, the interviewee noted that the CVC gained more importance and more traction following the parent company's overall strategy change. The parent company has decided to focus on increasing innovation activity in the overall company. As a result, CVC activity has started to be focused on increasing partnerships and being connected to the innovation ecosystem more. An important note here is that there are stigmas around certain industries that are deemed as closed off or have a low appetite for partnerships. The interviewee notes that the significant changes in the larger market have led to a shift in such industries. To demonstrate over an example: a services industry historically has a low appetite for partnerships and can be considered closed off. However, over the past years, several new players emerged throughout the supply chain, pushing the large players to innovate more. A key result of such change is the new innovation policies key players adopted. So, the CVC's role has also evolved into providing a channel for external learning to boost internal innovation for the parent firms. This can be done through working directly with new companies, setting up partnerships with firms that develop new companies, or simply by remaining close to these players and being a part of the broader innovation ecosystem. It is important to note that the role of the CVC is not to work with external ideas, then leave the new technology outside the firm, and re-develop the same technology or the idea for the parent firm; but it is rather to learn key approaches, routines, and changing practices and apply this knowledge to the large scale innovation approach of the firm.

Forth, CVCs play a key role in long-term value creation in a number of ways. CVCs have a future-oriented outlook where the goal is not always immediate impact of financial return, but the ability to create options for future value. In this instance, CVC may take the role of the scout or a planner where it can function as an "early warning system" or can identify potential firms that may create value for the parent firm in 10 years' time. Of the 6 interviews, 5 highlighted this aspect. There are two key outtakes that have emerged under this sub-topic. The initial one is

CVC's role as an early alarm system. CVCs are able to work with a number of stakeholders in the market ranging from large ecosystem players like multinationals and government institutions to small-scale startups. This provides CVC with the ability to learn from the ecosystem. One interviewee highlighted that their firm work towards identifying problems that may come up in the next 5 to 10 years. CVC in this case takes the specific role of understanding the problem and highlighting it. This is where the early alarm analogy becomes relevant. CVC assist in marking both market and firm-level problems ahead of time, through their position in the firm, being an out-looking arm of the larger parent company. Another interviewee further explained this function. Zooming in on the specific interaction between the CVC and the startups, an advantage CVCs have over internally facing innovation and development units is that CVCs get to spend more time with external startups as the main duty of their job. When working with these startups, CVCs get to work on understanding future problems that might arise, customer need trends, and sometimes, the true scale of certain industry or firm-level problems that they have not found the chance to comprehend fully initially. This process may end up tying into the previous point on boosting internal innovation as well. Another interviewee also emphasized the importance of these interactions. As the parent firm employs an innovation strategy on a larger level, it will benefit from being able to identify the new market trends, customer needs, and technology that develops in its core business areas or related business areas. The other key outtake is CVCs' role in identifying potential ideas and technologies that main firms may use in the near future. This can both be understood as finding the opportunity and investing in it or simply identifying the technology and working with it to purchase their services later. One interviewee noted that the CVC may choose to invest in a company with the goal of using it in certain amount of years in the future. This means that the CVC will make a positive investment decision with the assumption that the technology will become relevant in the near future. The technology might not be relevant at the moment as either the startup might be in its early stages and the technology is either not fully developed or has taken the shape that may benefit the parent firm of the CVC, or the parent firm has the potential growth plans in their diversification strategy but are not diversified to the point where the technology is relevant. Regardless, CVC may choose to invest with the idea that it may become relevant. Findings from another interview have supported this key outtake. Addressing the section where a startup has a technology or an idea that has not fully matured yet to be used by the parent company, an *accelerator* has been set up. The accelerator

can be defined as an early-stage program that supports startups through education, mentorship, and financing. Through tools such as accelerators, CVCs can help technologies develop into a service they might use in the future. Through an accelerator or similar tools, the CVC may be able to observe the development of the technology and even indirectly shape it into a technology that can be used by the firm company.

The fifth point that is raised may be the most straightforward among it all. CVC is a part of the VC segment, and by nature, VCs aim to make financial returns. So it is natural that a key function of the CVC is to invest for financial returns. One interviewee has argued that CVC should be able to generate competitive financial returns. On the surface, this seems like a very straightforward statement in line with the general understanding of investments. However, when one unpacks this statement in the CVC context a key concept emerges. Given that, unlike a typical IVC, a CVC has extensive experience in a specific domain, the statement from the interviewee was that they should be able to generate competitive financial returns due to their understanding of the market and specific technologies. So in other words, the CVC should be able to make good money through a minority position given that they have better competence in a domain.

The last key point is CVCs' role as a tool for communication and compatibility between startups at early stages and large corporations. There are a number of challenges that either inhibit or prevent startups from working together with large corporations in synergies. Startups at an early stage are required to be agile. They need to constantly strive for finding the right problems to target, find the right business model and *go-to-market* strategy, and constantly work on their technology to find the product market fit. This requires them to be constantly prepared to shift focus, pivot into new sub-ideas or even completely new ideas, and be in a dynamic state at all times. On the other hand, large firms have processes and command chains. They follow a set of processes and rules more religiously and due to these lengthy and time-consuming internal structures, they are not agile. As a result, miscommunication occurs between the startup and the larger corporate. Examples of such miscommunication may include time expectations, length of sales processes, products that could be delivered, the features that are required in the product, or logistical issues such as legal issues the larger firm needs to abide by and the internal processes the firm needs to go through in order to communicate with the startup. An interviewee argued that this is due to a lack of understanding between the potential parties. The startup may not

necessarily understand the inner structures of a large firm, whereas a firm may underestimate the agility and timelines required by the startup. To address this, CVC can play a role in physically bringing together startups with firms, physically, providing the opportunity to interact daily. In other words, CVC may act as both a rhetorical bridge and a physical bridge by creating a physical space for on sight learning. The interviewee argued that by creating this space, they are allowing startups and the parent firm to learn how to work together and how to talk to each other. Another interviewee supported this idea by further arguing that structures like incubators and accelerators, allow startups to work closely with the parent firm and its resources and understand the needs and processes. In other words, CVC emerges as a tool that enables communication between startups and firms by physically bringing both parties together.

Having presented the 6 key findings that emerged under the position of CVC in the larger strategy of the firm, the rest of this section will address 3 supporting topics that play into the position of CVCs. These can be classified as the individual potential of a startup compared to the value it provides strategically; CVC's approach to spin-ins and spin-offs; challenges from the corporate side.

4.1.1.2. Strategic Value vs Financial Value

Understanding where CVCs seek value is an important underpinning of the 6 key findings highlighted previously. CVC may choose to seek strategic value, financial value, or a combination of both. This will affect the ideas and technologies of the CVC, and through the CVC the parent firm, interacts with, learns from, and invests in. In this context, strategic value can be understood as the potential value that the technology or the idea may provide for the short or long-term plans of the firm, not being limited to financial returns. Whereas the financial value can be understood as the monetary value returned to the investor.

Seeking value is a core driver of the thinking process that affects the actions of the CVC: initially, when the CVC chooses to approach a firm, the value it seeks is one of the core reasons it approaches the specific startup. As a result, learnings and benefits from the interaction, whether or not there is a positive investment decision, will be in line with the initial reason. Through the interviews, three key approaches emerged: (i) profit over strategic value as long as it is related to the core; (ii) a balanced approach between the strategic value and profit; (iii) strategic value as a potential hurdle that the CVC needs to get over; (iv) investing with strategic

value over financial value. Having listed these 4 findings, it is important to note that, non of these approaches argue that either financial or strategic value is disposable. VC industry by nature looks for profit, and as a sub-category of the VC industry, CVC by nature looks for profit and strategic value. However, the weight between the two may change in different approaches although both need to be present. This sub-section tries to understand the new approaches that rise through the different weight distributions between the need to gain strategic value and the need to get financial returns.

The initial approach argues that profit is weighted higher over strategic value. Investments need to make financial sense, regardless of the approach, however, in this case, the profit triumphs the potential strategic value. This approach is closer to IVC investing, investing for the sake of financial returns, with a nuance. It needs to have a relation to the core business to some extent. An interviewee argued that it is crucial that the investment needs to make financial sense. There has to be profits. The team, technology, and market attractiveness play a larger role as the driver of the decision-making process, compared to the strategic value it will add. The interviewee argued that the investment could be something that the parent firm will not expand to or is currently doing, but the CVC will still choose to invest if they believe in the startup's potential to generate profits. For this specific approach, it is important to note that, strategic value is not the same as relevance. A strategic approach in this context would argue that the services of the startup would make sense in terms of the firm's expansion or goal to take control of a larger part of the market, however, relevance can be any business practice or technology that could be tied to the same or similar industries as the parent firms operations. The CVC may need to adhere to corporate mandates that prevent the CVC to invest outside the ideas or technology that is relevant to the parent firm's operations. To summarize this approach, financial profits will triumph over the potential strategic value to the parent firm, however, due to the investment mandates, the technology or the idea still needs to be relevant to the core business.

The second approach favors a more balanced approach between the individual potential of the startup and the potential value that it may provide to the parent firm. The common theme among the interviewees who said they had a balanced approach was that the existence of only strategic value, or only financial value would not be enough for an investment. As one interviewee stated, both the strategic and the financial potential are important as strategic fit by itself will not help with the investment decision. Another argument that was raised under this

approach was that keeping a well balanced ecosystem through their CVC. According to the interviewee, this ecosystem should consist of companies that have significant value to the existing operations and daughter companies of the parent firm, as well as companies that have no relation to the parent firm's activities. This idea was rooted in the larger strategy of the firm, which was to transform significantly in the next 25 years. The interviewee argued that to achieve that level of innovation, there was a need for both technologies and ideas that were both related and unrelated to the core businesses of the parent firm. Another argument was that there had to be a rationale for investing in a startup in terms of establishing a strategic relationship. The CVC needs to be able to identify a way where both parties can interact directly, which would mean a potential cooperation, a pilot study, or the implementation of the technology directly by the parent firm. However, this rationale itself is not necessarily enough to invest in a new idea or a technology. The startup needs to be able to stand on its own, meaning that it has the potential to be adopted by other customers, sell its services successfully, and generate returns, or it should have at least the perspective to do so. The interviewer summarized their argument by stating that the strategic fit by itself will not help with the investment decision; having financial returns without a strategic fit also won't help the investment decision. There needs to be both. A nuance under this approach was the ordering. An interviewer raised a chronological order on thinking about strategic and stand-alone financial value. Until this point, the order was not necessarily discussed however, the interviewee has raised their thought on this stating that the stand-alone value, the individual prospect of startup generating financial returns without the strategic fit to the company, was the first thing that came to mind. The interviewee stated that initially, the individual startup is very important when they are assessing a company, however, when the process starts maturing and there is a further consideration for investment, the potential strategic value becomes as equally important as the startup's stand-alone value. At the final decision-making, both are weighted equally. To summarize, under this approach, there is a balance between the potential strategic value of the startup, and the stand-alone financial value potential, with some nuances in the reasoning for this approach.

The third approach views the presence of a strategic value in a startup as a hurdle that needs to be jumped over in order to continue evaluating the startup. The interviewee stated that the initial evaluation of the technology or the idea is on the potential strategic fit. The CVC needs to be able to identify the potential strategic fit for the company answering to: *where can we work*

together or *what is the mutually beneficial relationship?* Once the CVC is able to find an answer to these questions and understand the potential strategic value, then they can start evaluating the idea in a more detailed fashion, given that in order to understand the strategic fit, there needs to be a strong overview of the case to begin with. Once this initial hurdle is surpassed, then the CVC can start the stand-alone potential and determine whether it believes the startup can generate returns. The interviewee concluded their thoughts by stating that they cannot live off of only strategic value and that they should be able to generate strong financial returns.

The fourth and last approach is investing with a strategic focus. Under this approach, the emphasis on the strategic value is greater than the emphasis on the financial value. It is important to re-state here that this does not mean overlooking financial potential but put simply, it means that when evaluating a startup for an investment decision, the strategic value it may possess becomes a more important factor that its potential to generate financial revenue as a stand-alone technology. Interviewees argued here that their CVCs invest with strategic value in mind primarily. So idea needs to have a strategic fit, either immediately or in the near future. It is stated that the team, business model, and market potential are important and the CVC will pay attention to it just like any other VC, however, it is not the primary factor it looks for. It is important for the CVC that there is relevance and a strategic fit early on, and that the potential collaboration between the startup and the parent firm on the strategic level is validated. If the CVC cannot find a related competency from both sides and does not see a strategic fit, then they will choose to not invest.

To summarize this sub-section, CVC looks for strategic value, financial value, and some combination of both. Through the interviews conducted, this research found 4 common themes. Of the interviewees, some argued for the need for profit over its potential strategic value to the core business, as long as the activity is related to the parent firms' core practices as they are mandated to invest in related technology and ideas. Second, a balanced approach emerged, where there was an equal weight on both the financial stand-alone potential and the potential strategic fit, in which either one without the presence of the other would be enough to lead to a positive investment decision. Third, strategic value was seen as a hurdle and once that was passed, then the investment needed to be able to generate strategic value. Although at practice, this approach is similar to investing with a strategic focus, the thinking behind is that financial returns are very important however the strategic value is a logistical must. Lastly, investing with strategic value

was the primary focus of some of the CVCs, as they needed to see the potential of the strategic fit to consider the startup for investment decision, as they have argued that their relationship with the startup needed to be mutually beneficial on the strategic and competency level. The next sub-section will explore CVC's approach to spin-ins, spin-offs, and spin-outs.

4.1.1.3. Spin-ins, Spin-outs, and Spin-offs

Spin-ins, spin-offs, and spin-outs are three very common concepts in innovation at the firm level. To briefly refer back to these concepts, spin-ins are externally developed ideas or technologies integrated into the structure of the firm through practices such as acquisitions or purchasing majority stakes in other firms; spin-offs are ideas and technologies developed internally, later to be set up as a subsidiary firm of the parent company; spin-outs are ideas and technologies that are developed externally by a previous employee after having left the firm to pursue the idea or technology in an independent venture. It is an inherent expectation that CVCs will play a role to a certain degree in some or all of these processes. So the *spin* concepts were asked CVC to understand their approach to it. Two key approaches emerged: (i) not engaging in spin-offs and spin-ins as a part of the CVC arm; (ii) building a hub to support spin-offs and spin-outs. This sub-section will dive into these two approaches.

Half of the interviewees have specifically commented on their CVC not engaging in spin-offs. However, this does not mean that the parent firm does not spin ideas off or spin ideas in. All three interviewees highlighted that the CVC arm did not engage in spin-offs or spin-ins as these were done through other business units. An interviewee stated that the parent firm did spin-offs as a part of their business development unit. The CVC is only concerned with investing in technologies and ideas that are developed externally, which may come in the form of a spin-out or a regular startup. Their CVC's scope does not cover spin-offs. Similarly, the same CVC also does not engage in spin-ins as spin-ins for that firm come in the shape of an acquisition and the *Mergers & Acquisitions* (M&A) arm of the parent firm is in charge of this process. Another interviewee has argued a similar statement, saying that if there is a spin-off, this would usually occur organically in a different arm of the parent firm. With regards to spin-ins, the same interviewee highlighted that investment decisions are not based on if they can be spun-in in the future, however, this might come through a competitive process and the CVC arm does not necessarily engage with the spinning-in process if and when they happen. Similarly, the

third interviewee has also stated that both spin-offs and spin-ins are under the scope of a separate arm under the parent firm. A fourth interviewee also commented on the spin-in aspect, arguing that they do not classify themselves as an acquisition engine for the parent firm and that they would like to avoid being in any position where they have to take an active management role for the company. So the interviewee stated that they do not engage in spin-ins. A fifth interview also stated that the CVC did not engage in spin-offs or spin-ins. 4 out of the 6 interviews have highlighted that their CVC arms do not engage in either spin-offs or spin-ins, whereas 1 interviewee highlighted that they did not engage in spin-ins only.

The second approach is creating a hub to support spin-offs and spin-outs. One interviewee stated that one of the responsibilities of the CVC is to build an ecosystem to be able to support spin-outs and spin-offs. It is important to note that the interviewee did not explicitly state that they engage with spin-offs. However, the interviewee stated that one of the core missions of their CVC is to set up a physical location and create a network. Through this approach, the CVC would like to be able to support spin-offs, and spin-outs and further help others discover new ideas and launch new companies. This is a unique approach as in this case, the CVC does not only consider itself to be focused on investing and creating a soft, or non-physical, ecosystem through its portfolio, but it actively engages with spin-offs and spin-outs and enables their further development through bringing the new ventures together in a physical space that is also close to the parent firm. This approach has only been highlighted by one interviewee and given its unusual nature for a CVC structure, this approach highlights an important nuance in the pool of CVCs in this study.

So to summarize, the most dominant approach through the interviews was CVCs not engaging in spin-offs and spin-ins. Of the 4 companies that were placed under this approach, 3 argued for not engaging in both whereas was 1 stated that they did not engage in spin-ins. The second approach identified a nuance where the CVC arm had both the goal and the ability to create a physical location, an ecosystem, where spin-offs and spin-outs can be directly supported by the parent firm and also benefit from each other's presence.

4.1.1.4 Challenges and Mandates from the Parent Firm

The last supporting concept this paper will explore under the position of CVCs under the parent firm is the potential mandates and challenges they face from the parent firms. As this paper stated before, CVCs do not act like IVCs. There are multiple factors that come into play when CVC is making an investment decision, and this paper has named 6 key factors related to the relationship between the parent company that emerged through interviews and will continue to investigate further reasons and factors that play a role in making these decisions. These factors are heavily influenced by the parent firm, and a direct process that leads to such factors existing is the mandates and challenges that are implemented from the parent firm's side. So, to further understand the position of a CVC under the parent firm, this sub-section will explore the themes that have emerged on challenges and mandates throughout the fieldwork.

Before exploring the findings, it is important to highlight that there might be certain limitations with questioning the challenges as the interviewee might have been reluctant to share some or all thoughts that might end up reflecting negatively on the parent firm. In the situations such as being interviewed, as the CVCs are tied to the parent firm directly, they might feel the pressure to avoid negative comments, given that talking about challenges might be considered revealing negative comments about the firm. Also, due to their position in the CVC and the parent firm and their duration with their position, they might not consider certain challenges that might be interpreted as challenges from a third party.

Acknowledging these limitations, 4 themes will be explored: (i) Unclear structures and low transparency may complicate the integration of new technologies and ideas into firms; (ii) The existence of multiple *key performance indicators* (KPIs) rather than a single one; (iii) Different understanding of how a venture fund operates: (iv) Parent firm mandates may lead to the emergence of internal structure in the CVC.

It is generally assumed that corporates have unclear structures and they are generally not transparent to a high degree. The understanding is that due to these structures, not only external parties to the firms but even employees of these firms might have trouble navigating. These might be tied to a number of reasons and affect many other outcomes, however, this would require a whole new scope, literature study, and fieldwork to analyze, and is out of scope for this paper. However, its effects on CVC operations fall directly under the scope as it is highly relevant to the positionality of the CVC. This may especially be apparent in both the

decision-making process. One interviewee has argued that complicated structures in the parent firm lead to a slow decision-making process within the firm. The CVC is heavily dependent on the speed of decision-making in the parent firm as in most cases the CVC invests the firm's money. So an unclear and ambiguous structure of the decision-making process in the firm directly leads to a decreased agility of the CVC. The interviewee stated that due to this, the CVC has failed to act fast and adapt to changing needs during both the investment decision process and the post-investment process. It was further stated that the CVC, just like an IVC, needs to be agile and fast in its decision-making as the startups will operate in a very agile way. The CVC needs to be able to keep up with this to a certain extent.

Another direct result of the unclear structures and low transparency is the difficulty to implement the new technologies and ideas at the corporate level. This may come in different forms, such as not being able to test out a new solution due to willingness to not share internal information from the firm's side, or missing out on new learning opportunities due to implementing a full-scale solution as the corporate structures may limit what can and cannot be implemented to the overall systems of the firm. An interviewee stated that the parent firm has very ambitious innovation goals however due to lack of transparency a number of questions remain unanswered when taking action toward the goals: *How do you include it within an organization? How do you embed it within your existing processes or systems?* These questions and more may remain unanswered which might affect the way CVC approaches a deal. For example, the CVC may want to invest in a certain solution given that they believe it relates to the core businesses or the parent firm, has a future-oriented solution that provides higher efficiency in certain operations, and overall is presented as a good deal to the CVC from the startup's side, however, the biggest challenge they might face is that, although theoretically the technology might be implemented to the operations and provide favorable results, the bureaucracy or the logistics may prove it difficult. For the sake of the argument, an example of the logistical or bureaucratic difficulties might be sharing certain data. Due to this limitation, the startup may not get to have a test with the company and prove results, and this may affect the full deal that CVC initially looked favorable upon. This example downplays the complexity of structures and low transparency in firms, as large multinational companies have a complex net of decision-making structures and internal rules, which proves difficult for innovation to move rapidly and the CVCs to be agile. To tie this back to the positionality of the CVC, the interviewee stated that, having

experienced these challenges, they decided to set up a key goal of the CVC as learning the most effective ways of communication between agile structures sucha s startups and complex and slow structures such as multinational firms. In other words, the challenges that were faced from the corporate side in terms of low transparency, slow decision-making, and hard-to-navigate structures have directly affected the CVC practices both in setting goals for the CVC itself and making investment decisions in certain CVCs.

Another theme that emerged is the presence of multiple KPIs. Firms utilize KPIs as a way of measuring performance, and development through the goals. KPIs can be understood as the basis for what they do, how they do it, and what they work to achieve. Simply explained, if the KPI is set on assessing financial returns with the goal of maximizing financial returns through an *x* amount of investments for an entity, then the entity will base its whole activity on this goal, which means, it will try to make *x* amount of investments that they believe will lead to maximized financial returns. This provides a broad scope as the only goal is to generate financial returns, which can be represented with *p*. However, if another KPI is set on the same entity on top of the first KPI, with the goal of maximizing positive environmental and social impact, then the company needs to adjust its activities accordingly. So with the two KPIs in effect, the firm now has to make *x* investments that will maximize financial returns, however, at the same time these investments need to be made to companies that will not only generate high returns but also will have a positive impact on the environment and the society. With two KPIs in place, the pool of new deals the company can invest in to make *x* amount of investments has decreased significantly to *0.5p*. As a result, the pool for making successful investments in line with the initial KPI has decreased, which may lead to a potential decrease in the possibility of making successful investments. An interviewee has argued that this is the case that they experience. As CVC does not function like a normal fund, the parent firm may create multiple KPIs or ask the CVC to create multiple KPIs that fit the overall strategy of the parent firm. The interviewee stated that in a normal fund, financial returns are your only KPI, however in an organization, it gets more complicated as the CVC needs to fit into a larger strategy. These KPIs might even be related to overall corporate politics which might make the investment process significantly more challenging than what a fund may experience with a single KPI on financial returns. So, the CVC needs to adhere to the larger strategy of the parent firm which comes in the form of multiple KPIs which proves a challenge to the CVC itself from the parent firm side.

The third theme is closely connected to the previous one. With the number of different objectives that the parent firm has, the activity of the CVC may go out of the boundaries of how a typical venture fund may operate. This might be due to different expectations from the CVC. Even going to a deeper level, one interviewee has highlighted that the reason for such expectations might be due to a lack of domain knowledge on how a venture fund may work compared to a typical investment fund. The interviewee has stated that in a venture fund, the way one builds a portfolio comes with the assumption that a limited number of investments may go big, and a larger number of investments may default. However this is not the case with typical investment funds and how they operate, and construct a portfolio. In the case that the firm does not have a clear understanding of the inner workings of a venture fund, or they establish a venture fund with the expectations of performance that of a typical investment fund, this may create potential challenges in approving investment decisions. It is important to note that the interviewee has not necessarily stated that this was the case they experienced in their current CVC. As a result, a key challenge that might arise from the firm side could be due to a different understanding of how a fund works and should work.

Lastly, CVCs may experience indirect effects from the corporate side. As CVC invest in a core-related business in line with innovation strategies, they might have to set up internal structures that try to capture deals where the new technology or the idea should be relevant to the core business in a certain way. This may significantly decrease the options in the pool of deals they see. This may be a direct result of the mandate that the parent firm sets when establishing the CVC and cannot necessarily be understood as a challenge. This point related more to how mandates affect the positionality of the CVC under the parent firm. One interviewee has stated that while the CVC arm was established, the newly found arm was mandated to invest in sustainability and digitalization, while still remaining under the core-business relevant space. This mandate has led to CVC establishing 6 areas they can invest in that would cover the mandate, and core business relevance, and still be able to generate financial returns. So in this specific case, the mandate has led to extensive external work before the CVC arm can become active, which directly affects the everyday operations in the CVC. Another interviewee notes a similar statement arguing that with the mandates that they were supposed to abide by from the parent firm, they came to the decision of only investing in companies where they can directly apply their competency and knowledge to. This means that the CVC arm needs to limit its

investment decisions to a significantly smaller pool. Additionally, the process of making the investment decision is significantly different. As a direct result of this internal decision, the CVC arm may need to validate extensively how the parent firm and all of its arms may benefit from the new technology or the idea, and how in return, it may help the parent firm. It is important to note once again that this is not a challenge but rather the effect of the mandate, however, this process can be tied to the potential emergence of challenges such as long sales times and slow adaptability as the parent firm needs to asses where the technology fits. So, the mandates set by the corporates may have significant effects on how CVCs operate.

To summarize this section, 4 themes have emerged under challenges from the parent firm and mandates: Unclear structures and low transparency may complicate the integration of new technologies and ideas into firms; multiple *key performance indicators* (KPIs) rather than a single one; different understanding of how a venture fund operates compared to typical funds; mandates that lead to structurings within the CVCs. While the first three refer to direct potential challenges that might arise from the corporate side, the fourth addresses how mandates affect CVC activity. Overall, each of these factors plays a key role in CVC's position within the parent firm.

4.1.2. Key Qualitative Factors for Positive and Negative Investment Decisions

During the interviews, following the position of the CVC, qualitative factors that CVCs pay attention to the most were explored. There has not been a significant amount of literature on the qualitative factors that play a driving role in VC decision-making from an evolutionary economics perspective. The goal of this section is to outline what the 6 CVCs highlighted as the most important qualitative factors. Initially, the key drivers of positive investment decisions will be outlined, followed by the key reasons for a negative investment decision. Under positive investment decisions, 5 key reasons emerge. These are *team, technology uniqueness, strategic fit, business plan,* and *the market*. For negative investment decisions, 6 key reasons emerge:

1. insufficient or weak team,
2. falling out of scope,
3. non-unique technology,
4. insufficient problem-to-solution connection,
5. the size of the market,

6. timing.

Each of these themes will be explained in the following chapter, but first, it is important to note what series these CVCs invest in.

The Norwegian venture ecosystem is described as a developing, not matured, and small ecosystem. Additional to this being hear-say, the small size can also be deducted from a small number of international IVCs, low startup activities such as gatherings, a limited number of CVCs, and a limited number of *unicorns*, meaning startups that have reached a valuation over 1 Billion USD benchmark. This means the investors are not highly classified under certain stages of investments, or series. Series can briefly be described as funding rounds in which startups allow investors to buy shares, or equity, or invest in the company in a number of ways. A company usually follows a pre-seed round right after its establishment, a seed funding round which is usually a smaller round, followed by Series A, Series B, and Series C. In most cases, the later the series is, the more funding the startup will demand as the company's need for financial support will grow with its size. In more matured ecosystems, investors will separate themselves into these rounds and will operate specifically in those funding rounds. The generalization of the factors being looked at in these ecosystems is, that the more later stage a startup goes, the more qualitative data it needs to show to the investors. However, this is not necessarily the case in smaller ecosystems such as the Norwegian venture ecosystem. The investors are not necessarily classified with strict boundaries and have the freedom to usually move to earlier stages. This is especially prevalent in CVC investors in Norway. This has a direct effect on the increasing significance of qualitative factors besides quantitative factors. Acknowledging the potential effects of CVCs operating in different funding rounds, the interviews have included a question on which series the CVC usually becomes active. Usually is key, as there are not necessarily strict boundaries or mandates in where venture capitals can operate from their side, as well as there, is no clear guideline or law and regulations that identify what is considered a seed series, series A, B, C, etc… on the startup side. So through the 6 interviews, a wide range of stages were identified starting from pre-seed series to series B. It is uncommon for a CVC to operate in only one of the stages so the following distribution will lead to a higher number of series than only 6 as many operate in at least 2 stages. Through the interviews, 3 CVCs are active in the pre-seed round, 4 CVCs are active in the seed round, 4 CVCs are active in Series A, 3 in Series B, and 1 in post-Series B. Only one CVC identifies its rounds as *post-revenue* without necessarily

providing a limitation for how late in the rounds they will go. It is important to acknowledge that the rounds may affect the qualitative factors looked at, or the different levels of importance a qualitative factor may gain in one funding round compared to the next. For example, the market size may play a larger role in Series A than a seed funding round. However, acknowledging this fact, the relationship between qualitative factors and funding rounds fall out of the scope of this thesis.

The first key driver that will be explored is the team. The team is the group of people that are finding the company, so it is natural that this is a factor that has emerged immediately. A common phrase that each and every individual who works in the venture industry may stumble upon is that *ideas are cheap, and execution matters*. This common phrase has come up in the interviews a number of times, although not necessarily stated in the exact words. One interviewee stated that team was the first qualitative metric they looked at. When they look at a startup, the CVC should be able to see how complementary the team is in terms of their skillset. They need to be able to cover the necessary skills to make the idea or the technology work and they need to show commitment to further building a strong and complimentary team in addition to the founding team. The team needs to be a group of people where the CVC can believe that they can execute this idea they plan to build. The interviewee did not go to specifics on what a complementary team would look like in their opinion given that each idea or each technology would require a different combination of domain expertise and skills. One other interviewee echoed this statement, further saying that they usually end up betting on the team and their abilities and that having too many metrics without looking at the team was quite difficult. The interviewee further argued that what they needed to see was the presence of their ambitions and their understanding of what problem they are trying to solve. Another interviewee has also highlighted the fact that the team was the first factor they looked at. The interviewee stated that they have made over 10 investments since their establishment and a key learning for them was always to emphasize on the team. They further argued that they needed to see a strategic plan, and how they are planning the generated revenue but in the end, it came back to how strong the team was. The remaining two interviewees have also emphasized the team as a key factor, highlighting the cruciality of the team's commitment and competency. Given that all 6 of the interviewees have either stated team as the first qualitative factor they evaluate or the most important one, it can be argued that a saturation point has been reached.

A natural next step in the interviews, after each interviewee highlighted team as a key factor, was to ask what a good team consists of. Three dominant responses emerged. The first and most prevalent one was the domain expertise of the team. One interviewee immediately argued that there has to be proof that the team needs to have knowledge and experience in the broader area they are building their startup in. Another interviewee argued that evaluating the domain experience of the team was the first step. They framed the way they evaluate the domain expertise in the following way: *How long have they been educated in the related domain or working in the sector? Did they previously work for a firm that tried building a similar solution, and did the team find a new, more innovative way to build it? Have they previously built a startup with an idea that is in a similar space, or a technology that is related to what they would like to build now?* The interview concluded by stating that deep domain expertise was a very strong sign of the strength of the team. A final interviewee on this topic added the importance of understanding domain experience in a context. They stated that domain experience should be evaluated within the appropriate context, which means comparing someone who has been working in the same sector for over 30 years to someone who has been working in the same sector for less than 10 years. The interviewee argued that the trajectory potential should be judged to have a fair and relevant understanding of their domain expertise.

The second response was diversity. Diversity of the founders and diversity of their professional careers and knowledge. An interviewee argued that diversity played an important role in assessing a team, as a non-diverse team will be limited in what they can achieve given that they have very similar knowledge or skillsets. The interviewee stated that they look for a diverse range of knowledge, and experience, both professionally and personally, in a team. Thirdly, coachability played an important factor. An interviewee argued that the team needs to be able to understand feedback from the CVC and be able to adapt accordingly. As CVCs have high levels of domain knowledge in areas they choose to invest in, the interviewee argued for evidence of the ability to learn from others and adjust accordingly. Lastly, the ability to attract further talented individuals was highlighted in evaluating a team. An interviewee argued that the team needs to bring together other people for the goal they are working towards, they need to be skilled at managing other talented people and have strong interpersonal skills. These four factors have been highlighted d as key metrics in evaluating a team, with domain expertise emerging as the key driver.

The next key qualitative factor for a positive investment decision is the technology behind the product and its uniqueness. Through the 6 interviews, the importance of the technology and its uniqueness has been highlighted in 4 interviews. Through these interviews, the common idea was the importance of understanding whether the technology being built was, in fact, innovative, achievable, and unique. The first interviewee highlighted the importance of the technologies uniqueness. The interviewee stated that how the technology stood out in the market and the product being built was very important. They highlighted that they needed to see a product that has an improvement, or an edge, over the other competitors who are competing to build for a similar market. The interviewee further noted the importance of the scale of the innovation, whether it was providing a radical innovation or an incremental one. There was no specific mention of which one they would prefer, given that each case might provide different value through different scales of innovation they might bring, however, the interviewee stated that this was a factor that was looked into. Building on to the competitive aspect of the technology, other interviewees highlighted that they evaluated the uniqueness of the product by looking at *intellectual property* (IP). They further stated that looking at the IP gives them an understanding of the potential advantage the technology might have over its competitors. The latter two interviewees argued that besides the competitiveness of the product, given that they might be looking at startups at a very early stage, they would like to see the product and understand its actual capacity, given that some of the ideas presented may be deep tech and relatively hard to execute. So, the technology itself plays a key role in evaluating the startup through a qualitative perspective. The key factors CVCs look into are the competitiveness of the product and the proof of its actual feasibility of being built. It is a key concern for CVCs that if the innovation is too incremental or does not necessarily have a key potential advantage, the likely hood of adoption of the technology is lower. So the CVCs try to understand this aspect of the technology as early as possible. Given the early stages, another concern is seeing proof that the technology can actually be built. As there might be products that are too complex and challenging to build, 20% of CVCs that were interviewed stated that they would like to see some sort of indication directly that the product is either being built or that it can be built.

The next driving factor is the strategic fit of the potential idea or the technology. This point relates closely to CVCs' statements on their position under the firm's larger strategy. As all 6 interviewees have stated, the ideas or technologies they will invest in need to be related to the

core businesses of the parent firms to some extent. Following this statement, strategic fit emerges as a core qualitative concept when CVCs evaluate a new startup. It is important to note that of the 6, 3 of them stated that this was looked at during the interviews, however, one can drive the conclusion that all 6 of the CVC pay attention to the strategic fit, from analyzing the statements on the position of the CVC under the parent firm in the initial section. The initial interviewee stated that there has to be a strategic rationale for the parent company for the CVC to invest in. This is hard to quantify in terms of monetary value. However, understanding the fit with the larger strategy within the parent firm is a critical part of the evaluation. A second interviewee supported this statement by stating the importance of a visible strategic fit. The third interviewer focused more on how they evaluate the strategic fit. The interviewee stated that: they might be in communication with relevant business units to understand the potential fit of the startup, trying to see if the business units believe this is relevant for their future activities; setting up pilots with the parent firm to be able to evaluate the potential value of the startup for the strategic plan for the parent firm; and lastly, establish partnerships with the startup to understand the potential exchange between them. This means that the CVC would like to be able to understand more than only what the startup can provide. The CVC would like to see the potential benefits it can provide to the startup as well as it believes that this is a clear indicator of a strong strategic fit.

To summarize this paragraph, understanding how the startup will play into the overall strategy of the parent firm or relevant business units under the parent firm is a key qualitative factor that is hard to assess in terms of monetary value. So the CVCs try to understand the potential value the startup may provide strategically in the evaluation process through a number of ways including pilot projects, partnerships, and internal communication with the relevant business unit. The result they get become one of the key factors in making a positive investment decision.

The fourth concept that emerged was the business plan. In addition to the team, technology, and fit, the startup's plan to commercialize its idea plays a key role in CVCs making a positive investment decision. This factor was specifically highlighted by only 1 of the 6 interviewees, however in most cases, the commercialization aspect was built into the factors. For example, the team's domain expertise and complimentary setup are highly relevant to the business plan, given that the complementary team will have someone who can execute the commercialization of the technology. Another example is the strategic fit, as the business plan

may play a key role in how the CVC can utilize the startup or the other way around. A commercialization plan that is built on top of the core businesses of multinational firms may be a stronger strategic fit compared to a product that only has technological relatedness to the firm. The interviewee who specifically highlighted the business plan as a separate factor highlighted how big its extent was to the whole process of making an investment decision. They argued that the business plan provides a strong indicator of how the team thinks and how the startup as a whole can reach its customers. So overall, the business plan plays a key role both evaluated separately and as a build-in aspect to many other factors.

The last factor is the market. The size of the market is an important factor in order to see the potential growth of the startup. The selection of the market may show the investor a scale of indicators from the ambition level of the team, to the scale they will achieve. One interviewee immediately highlighted this aspect. The market the startup operates in is an important indicator in the CVC to understand the long-term ambitions. The interviewee notes the potential globality of the product is a key component in making investment decisions. So it is important that the market they operate in has a strong indication of globality. Another interviewee further dove into understanding the market by posing the following questions: how big is it, can taking a significant fraction of the market be achievable… The interviewee highlighted that these were core questions they asked to understand the potential of the firm. The interviewee concluded their thoughts by highlighting that in the end, it comes down to the team and the market for them.

With regards to factors that may lead to a negative investment decision, of the 6 interviews, 6 factors emerged: *insufficient or weak team, falling out of scope, non-unique technology, insufficient problem-to-solution connection, the size of the market,* and *timing*. Similarly to factors affecting positive investment decisions, a firm may choose to not invest in a startup if one or more factors in different combinations are present.

The most predominant factor for a negative investment decision was the weakness or insufficiency of the team. Just like the effect of the presence of a strong team is a key driver for a positive decision, the presence of a weak or insufficient one is a key element in CVCs choosing the reject the investment opportunity. 5 interviewees have specifically highlighted the importance of a team and how missing a strong team might be significant enough to stop a deal. An interviewee immediately stated that if they believe the team is incomplete and needs a significant amount of strengthening, the decision will most likely end up as a negative investment decision.

Another interviewee continued to build up on the previous statement and mentioned the *TTT* metric. This stands for the *team, timing, and total accessible market* (TAM). Then they referred to their previous answer on factors affecting positive decisions, stating the lack of domain expertise in the team would be an important factor. Another interviewee further explained what makes a team look weak or insufficient. They stated that each individual's drive to be a team player and expectations are key. Further expanding on this, the team needs to be able to incentivize new employees to be able to join, which usually comes in the form of an *employee stock ownership plan* (ESOP). When a company is set up, the shares that create the ownership of the company are distributed to the founding members in a combination they have agreed upon previous to incorporating the company. So if there are 3 founders and they agree to have an equal distribution of shares, then each founder will receive one-third of all the shares that constitute the company. Following this, founders can agree to allocate a certain number of shares as what is called an ESOP. The interviewee highlighted the importance of sewing willingness to set up an ESOP in order to incentivize the right people and stated that missing this aspect would qualify as a strong reason for not believing in a team. The interviewee also stated that unrealistic expectations for funding are an important factor that has become more and more common. Building on top of the previous statements, the last interviewee stated the importance of the team having a plan. So when defining what makes a team insufficient or weak, the team's capability of planning plays a large role. According to the interviewee, the team needs to have a financial plan and a financial forecast. If the team is missing the "big picture", this may come across as a significant reason for a negative investment decision.

If a startup's idea or product does not fit into the strategic plan or the scope, a CVC may decide to not invest. It is clearly stated that CVCs are required to invest under a mandate set up by the parent firm, and CVCs usually look for a related business idea. It is previously stated that a significant portion of the interviewee group has highlighted the importance of seeing a strategic fit with the relevant business units under a parent company, on top of the requirement that the idea or technology needs to be related to the core businesses. When questioned about the factors that lead to a negative investment decision, half of the interviewees pointed out the need for a strategic fit. The first interviewee stated that if the idea does not relate to the core businesses of the parent firm, then they will not invest. A secondary interviewee has also stated that if there is no strategic fit, then they will not invest. Seeing a fit both in terms of product and technology,

and the long-term vision is very important. The interviewee proceeded to say that approximately 70% to 80% of the deals they receive lead to a negative investment decision due to this reason. The last interviewee echoed the previous statements, emphasizing the importance of the ability to learn from each other as the parent firm and the startup and see a strategic fit. In other words, not seeing a strategic fit can be considered a clear indication of a negative investment decision.

A third factor relates directly to the technology aspect. When making a positive decision, the importance of a unique product has been highlighted by 4 CVCs. So, it is natural to have the expectation to see non-unique technology as an indicator of a negative investment decision. However, in this case, only 2 interviewees have stated this as a potential reason for a negative investment decision. The first interviewee clearly stated that if the product is just like any other, they would not be interested. A second interviewee further elaborated, stating that initially, they would look at where the technology would fit under the parent firm. Then they would communicate with the relevant business units to understand the complexity of the product and the competition surrounding it. In the case that it is an easily replicable product with a large number of competitors, they would pass on the deal.

The next factor highlighted is one of only two that was not clearly stated as a reason when asked about what factors may lead to a positive investment decision. One interviewee has argued for a clear connection between what the startup has identified as a problem, and what they see as a clear solution for it. It is important that the idea or the technology of the startup is fixing a problem and adding direct value for their customers. The interviewee has argued that they need to be able to see a clear line of sight on who the technology is actually serving and what it solves. Without the presence of this connection, the CVC may choose not to invest.

The fifth factor that was highlighted is the size of the market. 2 interviewees have clearly stated the need of seeing a large market. The common idea between the two was that the opportunity needed to be big enough and without a large market, an investment decision may likely be negative. The first interviewee stated that having a market that is too small is a clear problem. They need to see the startup serving a strong volume of customers and be able to make an impact, otherwise, the prospect of having minimal impact is a key reason for not investing in a startup. The second interviewee referred back to the TTT approach, stating that a strong TAM is required. They echoed the words of the first interviewee with regard to the size of the market and further elaborated. The startup needs to be able to address an extremely large opportunity

and the CVC needs to see traction with the end customers. It is important to note that traction may come in different forms, however, the interviewee clearly stated rather than a specific form of traction, they would like o see any kind of indication of the market size. They further explained that they conduct interviews and reference calls with people who they think are relevant to paint a clear picture of the size of the market as well. In other words, the small market size stands out as one of the most important reasons a CVC may decide to not invest in a startup.

Lastly, timing plays an important role in negative investment decisions. This is the second factor that was not clearly highlighted in factors that affect positive investment decisions. Only one interviewee referred to timin as a key reason in this section. As the last part of the TTT approach, the interviewee argued that if they believe that it is not the right time for that technology, they will choose to not invest. Before summarizing this subsection, it is important to note that these factors may lead to a positive or a negative investment decision as stand-alone reasons, or in combination with other reasons. The presence of a factor, that would otherwise lead to a negative decision, does not necessarily mean that it directly may lead to a positive investment decision or the other way around.

This sub-section has expanded on the findings to the questions of what factors may lead to positive investment decisions and what factors may lead to negative investment decisions. Under factors that may lead to a positive decision, team, technology uniqueness, strategic fit, the business plan, and the market has emerged. Under the factors that may lead to negative investment decisions, insufficient or weak teams, falling out of scope, non-unique technology, insufficient problem-to-solution connection, the size of the market, and timing emerged. The next subsection will focus on the competitive advantage and disadvantages of a CVC over an IVC.

4.1.3. CVC vs IVC: A Competitive Analysis

CVCs and IVCs differ in the way they operate, what they invest in, and why they invest in what they invest. So when a startup searches for funding there could be a number of options such as institutional investors, investment banks, private equity firms etc… However alternative funding schemes fall out of the scope of this paper. When a startup chooses to follow the venture capital path for its funding, they face two options, that is either to fundraise through a CVC or an IVC. So this is a two-way process. The startups will also look for the right fit for themselves.

The startup choosing to seek funding from a CVC is as much of a part of the deal process as the CVC choosing to fund the startup. So far, this paper focused on CVC's position under the umbrella of the parent firm and the factors CVCs seek in startups to make investment decisions. In this section, this paper will change lenses, and start looking at the advantages and disadvantages of a CVC compared to an IVC to understand why a startup may choose to go to a CVC.

This subsection will explore the potential advantages and disadvantages a CVC might have over an IVC through 6 interviews. Initially, the potential advantages will be explained. Through the interviews, 2 key benefits have emerged. First, CVCs have a high degree of domain expertise and startups may benefit from knowledge spillovers. Second, CVCs may provide access to markets to a certain degree. On the other hand, two disadvantages emerge. The first disadvantage is reputation. Startups may not want to associate with multinational companies. Second, CVCs might have long decision-making processes due to corporate structures. These points will be further elaborated followed by a summary of this section.

All CVCs that took part in the interviews have unanimously agreed that the one key advantage they provide to startups they may invest in is a high degree of domain expertise. For all of the CVCs interviewed, their parent firms have a high degree of specialization in one of the given segments: energy, industrial technologies, manufacturing, and service. This means that they have the capacity to share domain expertise and knowledge spillovers. A first interviewee stated that their value is their obvious corporate expertise in their sector. The interviewee further stated that they have knowledge across different technologies and geographies. The startup may be able to leverage from 1000s of engineers the parent firm has in different locations working with different technologies, as well as the potential to leverage on firm's test facilities and research centers as well. Building up on this, a second interviewee stated that the startups maybe leverage their strong *research and development* unit. As they have deep industry expertise and a strong understanding of the markets. The interviewee argued this to be a key benefit. In another interview, it was argued directly that being an industry expert is the biggest competitive advantage a CVC may offer. The interviewee stated that they have the capacity to share knowledge on technical and commercial challenges the startup might be facing given their high degree specialization. For such discussions, they can leverage different business units and provide the necessary knowledge to the startups on the technology or the business strategy.

Another interviewee also briefly argued that given the long history of the parent firm, the key benefit to a startup would be the knowledge accumulated through extensive years of experience. A final interviewee stated that their competitive advantage is linked to their ability to bring more than capital, meaning their knowledge, expertise, and connections to the startup they invest in. To summarize, each CVC has clearly stated that its key competitive advantage is the knowledge they offer to the startup, where a startup can leverage the key resources for deep domain expertise, both in technical and commercial areas, directly through the parent firm and its sub-business units.

The secondary advantage the CVCs provide is access to the market. 3 of the 6 interviewees have highlighted that another key benefit they may provide to the startups is the resources for smoother access to the market. An interviewee stated that there are two ways they may provide market access. First, given that the parent firm has an acknowledged domain name by other players in the same segment and across industries, an investment from the firm may provide a seal of quality for the technology. This may provide the startup with a strong advantage in the marketing aspect, making acquiring customers relatively easier. Second, the firm may open up new channels for acquiring customers through a number of ways such as providing introductions to relevant customers, or even becoming an end customer themselves. A second interviewee echoes this point, arguing that they engage in a number of pilots, and test projects, with the startups they may invest in which may lead to them or one of their customers becoming end customers for the startup. The third interviewee has also agreed with these benefits, stating that the startups may be able to do a pilot project with the parent firm or use its connections to be introduced to potential customers.

To summarize, when compared to an IVC, CVC may be able to offer knowledge spillovers and key learnings on the technology and the commercialization side, as well as potential new channels for customer acquisition. IVC may fail to offer these conditions, given that an IVC is not generalized and does not have a high degree of specialization in an industry, which means it may lack the channels for acquiring customers or necessary resources to leverage for knowledge spillovers.

On the other hand, CVC may have potential disadvantages. The first potential disadvantage is reputation. Startups are young and agile organizations, whereas multinationals are inherently slow and nonagile organizations due to their sheer size. With a multinational firm,

it is expected to have some sort of regulation and centralization which means a lower degree of freedom. Building on this general knowledge, the first interviewee stated that the startup may want to be more independent and not associate with multination firms that may in the long run place board members on the startup's board. This might mean that the startup would be locked in with an incumbent firm and would start losing, or may seem like it is losing, certain degrees of freedom. Another interviewee builds up on this by stating that CVC does not generally have good standing in the larger VC market. This means that there is an assumption that the way a CVC is set up is to not necessarily only invest in it but to buy it. This assumption may lead to a startup declining to be funded by a CVC with the idea that it does not want to be owned by an incumbent player or a multinational.

A secondary disadvantage is the long decision-making process due to structures. The speed of decision-making is in high demand by startups and in the cases that there are long waiting times for a startup that usually needs quick funding, given they are very young, growing companies, may lead to a startup avoiding seeking funding from CVCs. Only 1 of the 6 interviewees has argued on this topic, stating that the speed of decision-making is a potential disadvantage of working with a CVC from a startup's perspective. The interviewee further added that the requirement of having a strategic rationale, or at least some degree of relatedness to the firm's businesses, may limit the interaction of the CVC with a startup. When compared to an IVC, the IVC has the ability to be more flexible given that in most cases they do not need specific strategic requirements as they are usually independent funds. So CVC would prove to be more strict whereas an IVC would have a higher degree of flexibility in what they choose to invest in. To summarize, a CVC may have a negative reputation as the understanding it that CVC provide a lower degree of freedom for the startups they invest in. Additionally, long and slow decision cycles in the firm due to the internal structures and narrow scopes may prove significantly less flexibility whereas an ICV would be associated with higher levels of freedom and flexibility, This may ultimately lead to the startup choosing an IVC to a CVC for their fundings.

4.1.4. Disruptive Innovation and Exact Market Competition

The fourth and last subsection in the findings chapter will explore CVCs' approach to disruptive innovation and emerging competition in the markets in which they operate. Through

the 6 interviews, this study attempted to understand the approaches of incumbent firms toward investing in disruptive innovation through their CVC unit in the market in which their core businesses operate. 2 key points emerged. First, firms will try to adopt disruptive innovation to an extent by investing in new technologies that may lead to disruption in the market. Second, the firm may choose to not invest in a technology or an idea due to a high degree of similarity.

5 interviewees stated that the CVCs will try to capture disruptive innovation to a certain extent. An interviewee stated that they find investing in firms that target the same space as the firm as a positive. The interview further argued that a combination of "inside" and "outside" will produce this disruption, meaning CVC's investment in potentially disruptive technologies is likely to be combined with the main firm itself for disruptive innovation. The interviewee continued to highlight a specific example of a company that they have invested in that is now a part of the parent firm and is working on developing a new technology and a process in the same market as the core business of the firm. The interviewee clearly stated that the firm was willing to work towards a "new way of doing things" by incorporating what they think to be potentially disruptive. A second interviewee stated that they are invested in technology that works under a specific sector that might disrupt the general market the firm's core businesses operate in. The interviewee clearly stated that if this technology were to be commercialized, or when it is commercialized, it will be disruptive to the larger market the parent firm is in. The interview further added that the firm did not have a specific business unit that operated in the same niche sector as the technology. The interviewee further stated the challenges of assessing a disruptive technology, saying that it may have negative or positive effects on the parent firm. Despite the unclear prospects, the CVC is still likely to invest in disruptive innovation with the assumption that if it can help then they should be open to it. Building on top of these statements, another interviewee highlighted that they are currently not seeing a technology completely disrupting the value chain in their specific sector. However, the interviewee stated that there will be a combination of technologies and products that will coexist and may provide disruption down the line. The interviewee further stated that they will invest in and implement these technologies that have the potential to be disruptive. A final interviewee has stated that they are likely to invest in technologies that have the potential to disrupt the same or a similar market as the parent firm's operations if the CVC believes that their technology or way of doing things are significantly different than the parent firms. So in other words, a significant fraction of the interview group

has stated that they would invest in technologies that may be disruptive, with one highlighting specifically that they need to see a significant difference in the innovator's way of doing things.

On the other hand 2 of the interviewees have highlighted that if they see a significant similarity, they might choose not to invest in firms that may disrupt their parent firms' activities. An interviewee who stated that they would likely be open to investing in disruptive innovations with the condition that they have a significant difference in their technology or routines, also stated that if they do not see a significant differentiator with the startup's technology, then they will not invest. It is important to note that the interviewee addressed a situation where the condition would be that they have already invested in a technology that might have a disruptive or a low-scale innovative angle. In this case, if they see a new technology or a routine that is potentially a competitor without a significant differentiator in their technology or their routines, they will not likely invest. A final interviewee has stated that they believe it is difficult for their CVC to invest in firms that may compete for the same space. They argued that the presence of a high risk of conflict may lead to a negative investment decision. The interviewee stated the reasoning as the wish to avoid a situation where a startup that they invest in starts to feel like the parent firm is using them to have access to specific data and then use this to compete with them.

To summarize, in the interview group, a significant portion htated that their CVC is likely to invest in disruptive technologies, with the nuance of one CVC only choosing to invest if there is a significant differentiator and otherwise not investing in technology that may compete. ! final CVC argued for their willingness to not invest in firms that compete for the same market space given that they would like to avoid a situation where they might seem to be benefiting directly freeing close to a competitor.

4.2. Analysis

This section will start exploring the empirical data through the theoretical framework of the thesis. As stated before, EEG has an extensive focus on how the economic activity and regions' economies evolve over time, and the key mechanisms that underpin these processes. However, on a micro level, there is a lack of focus on the agency that underpins these mechanisms. So far this paper has started from the larger point of path dependency, then narrowed down to industrial diversification through relatedness, and open innovation. The flow from larger mechanisms to firm-level actions will now be reversed. Starting from a firm level,

this section will initially analyze the empirical findings through the open innovation theory with the support of real options theory. In this sub-section, Chesbrough's (2003) framework on open innovation and real options theory is to first understand corporate venturing through these theories, and then analyze the position of the CVC as well as the business model as a qualitative factor. Later, through the use of related and unrelated variety and sub-concepts of technological relatedness, product relatedness, and skill relatedness, the key qualitative factors that underpin decision-making will be analyzed. Finally, the implications for EEG will be discussed, specifically through industrial diversification and path dependency.

4.2.1. Open Innovation

Chesbrough's framework highlights a shift in how firms innovate (2003). From a closed model to an open innovation model, on a higher level, firms now explore a wide range of opportunities, processes, and interactions. A number of new agents take on new roles in supporting firms in the open innovation model. CVCs emerge as one of these key actors. At its core, the open innovation model argues for the possibility to externalize innovation opportunities. CVC is one of the connectors that enable open innovation practices. Placing itself between the parent firm and the broader economy, CVC enables interactions with the broader ecosystem.

In open innovation, a core argument is the firm's ability to use external ideas as well as internal ones to innovate (Chesbrough 2003). According to the findings of this study, 4 out of 6 CVCs stated that they invest in core business-related ideas and technologies. These firms have argued for external search for innovation, especially for technologies that provide them with diversification and technological advancement in their respective or related industries. Following this point, 5 out of 6 interviewees have highlighted the use of CVC to further the technological competencies of their core businesses, with the understanding that all innovation cannot be done internally. Furthermore, it has been stated by an interviewee that CVCs may serve as alarm systems that can scan through markets to get an understanding of movements in the market, new technologies that are developing, and problems that may arise in the next 5 to 10 years. These points directly relate to the core of open innovation where a firm benefits from the ability to invest in external technologies. However, a key reminder from the open innovation theory here is the uncertainty of new businesses. Vanheverbeke et al. argue that new businesses face uncertain

futures and then draw a connection between real options and open innovation. They argue that for firms to be able to benefit from external innovations, they have to reduce uncertainty, which, in this case, comes in the form of relatively small investments (2008). So going back to the empirical data, firms want to invest in technologies and ideas that they have not developed, and they need to reduce risk in the form of a small investment. Specifically referring to one of the answers as an example: one interviewee stated that one of the main goals of their CVC was to invest in new technologies that they may be able to benefit from immediately or in the near future, in the two core verticals the parent firm operates on. So they investment in technologies in this space through a number of different rounds with options to invest smaller amounts. This process can be explained through the CVC emerging as a tool that makes the connection between the external technology and the parent firm, while reducing risks, giving the ability to the parent firm to include itself in the new technology through smaller investments.

Furthermore, Vanheverbeke et al. argue that "tapping into externally developed technologies also enhances the upward potential of the real options theory because the company can scan a broad range of interesting ideas and projects" (2008, p253). So, on a broader level, through real options theory, open innovation ideas can be used to explain how CVCs position themselves and how they serve the parent company. In this case, real options theory with the backdrop of open innovation can be used to understand that CVC enables investing small stakes in more technologies that are developed externally because of how CVC is set up. Instead of spending limited resources on developing a smaller number of in-house developed technologies, CVCs create the option to invest in externally developed technologies for the parent firm, and since the firm does not have to spend the same amount of resources for an externally developed technology, as they would to an internally developed technology, the firm is able to explore multiple new innovations. As the CVC starts with a small investment in the technologies which they find useful, this provides them the opportunity to further invest in the upcoming rounds if they choose to further pursue this technology. So CVC activity, in this case, can be understood through open innovation and real options theories, enabling the parent firm to explore multiple externally developed technologies with the option to further pursue them if it proves relevant while preventing the company from deploying more resources.

A second point is external innovation's benefit to internal innovation efforts. Open innovation theory argues that external research and development may create significant value for

internal research and development as well. Through working with external innovators, the firm will capture some value through knowledge spillovers and learning. So investing in technologies externally developed may be used as a support for boosting internal innovation. This idea can directly be understood as an underpinning of what an interviewee argued. The interviewee has highlighted that the CVC has gained significantly more traction internally following a change in the parent firm's overall approach. As the firm switched to a strategy that aims to boost internal innovation, CVC activity increased. The interviewee stated that the CVC has become a channel to create learning opportunities for the parent firm. By investing in external technologies and starting to work with them, both the parent firm and the invented startup have gained new insights and knowledge through their interaction, which otherwise they might have missed. As the interviewee stated, they would work with firms that they believe they have the knowledge, skills, and other resources to offer to, and can learn from them in exchange. This means that the interviewee has held the learning aspect as a priority, with the idea that the interaction between the parent firm and the new startup that has been invested in may lead to an increase in internal innovation due to knowledge sharing and spillovers. So in other words, the assumption under open innovation theory that a firm may be able to capture some value from external research and development can be understood as an underlying factor in the CVCs' decisions given that the interviewee has highlighted one of the main uses of CVC as boosting internal innovation through learning from external technologies.

Third, open innovation theory suggests that the firm does not have to originate the research in order to reap its benefit. CVCs by nature, aim to invest in technologies and ideas that can generate value for the parent firm. This value may come in the shape of strategic value, or financial value. Regardless, as interviewees have stated, their CVCs' goal is to invest in technologies that will generate value. In the findings section, there has been a comparison of strategic value and financial value. Firms aim to invest in new ideas and technologies that will either provide a strategic value as a priority or an equal combination of both financial and strategic value. The key takeaways from that section can be explained by this aspect of open innovation. CVCs are channels utilized by the parent firm to invest in new technologies that can provide strategic value or financial returns, despite non of these ideas or technologies being generated internally. Both strategic value and financial value can be generated by the new technologies and ideas, the firm aims to reap these benefits by investing in them through the

CVC, without having to originate the technologies or ideas themselves. In other words, a significant duty of the CVC is to invest in external technologies that return value through ideas that have been originated externally, to the parent firm.

The fourth point in Chesbrough's framework on open innovation argues that winning the market is not necessarily dependent on reaching that market first, but rather, it may be dependent on building a better business model (Chesbrough 2003). During the interviews, it has been stated that the business model is one of the key factors for the CVCs when they are making investment decisions. As one interviewee directly argued for the business model's importance in the decision-making process, this can be explained by open innovation to an extent. Building on top of the notion that CVCs are investing in ideas and technologies that generate value for the parent firm, CVCs may invest in ideas that they think can address a significant portion of the market. This will allow them to maximize returns, given that this may mean a larger rate of adoption for the technology. With the shift from *first to market* to *better business models*, CVC may try to invest in companies that have an innovative or a more effective business model compared to other technologies in the market and make a bet that this approach to the market may win it. In other words, CVCs may act with the underlying thought that a better business model may be able to serve a large portion of the market. This aspect of open innovation may play a role in underpinning the factors that a CVC looks into when making an investment decision.

When applied to the findings from the interviews, open innovation theory provides multiple underpinnings to common themes that were highlighted with regards to the positionality of CVCs under the parent firm. As open innovation theory can be understood at the firm's strategy level, the framework by Chesbrough clearly provides points that can be used to explain the positionality of CVCs in the Norwegian economy. Taking one step further, use of real options theory connects open innovation underpinnings to CVC as a tool for innovation, by providing explanations on how a firm in the Norwegian economy may utilize the CVC. To summarize this explanation:

1. CVCs serve as channels for the parent firm to invest in multiple external technologies that are related to the core business of the parent firm;
2. CVCs enable multiple investments on a small scale to reduce the risk of uncertainties with new technologies;

3. CVCs serve as a scouting tool for new ideas on the market as well as potential problems the market may face in the near future.
4. CVCs can be potential channels that enable internal innovation through reaping the benefits and learnings from external innovation;
5. CVCs can reap benefits from external innovation in the form of strategic and financial value;
6. The emphasis that open innovation places on a better business model rather than the first business model of its own kind may underpin certain investments decisions a CVC may make.

4.2.2. Industrial Relatedness

Open innovation and real options theories application to CVC positioning had a focus on firm-level activity. Taking a step further, this sub-section will be focusing on industrial relatedness, and start analyzing how unrelated variety and related variety plays a role in explaining the qualitative factors that are key in decision-making processes for CVCs, as well as certain positionality reasons of CVCs. Initially, this section will analyze cognitive and industrial proximity. Later skill relatedness, technological relatedness, and product relatedness will be applied to the findings.

Nooteboom et al. argue that knowledge creation and learning may depend on different combinations of diverse and complementary capabilities in and between organizations (2007; Boschma 2005) This approach marks the starting point for explaining CVC as a tool for communication between startups and large firms. As the interviewee stated, firms have complex structures, and decision-making processes are lengthy. There are internal processes and a chain of command that are in place for a large firm to operate. On the other hand, startups are small and agile, they require fast response times, and they adapt quickly. Having pointed out the clear divide between the way these two entities operate, the interviewee argues for a need for communication. This communication is needed for the startups to learn how larger firms operate in order to work with them, and firms to learn the new technologies that are being developed. As a result, both parties may benefit from knowledge spillovers. However, Boschma highlights that this communication does not necessarily happen with only having access to knowledge. "The

tacit and idiosyncratic nature of much knowledge implies that access to knowledge is not a sufficient condition" (2005, p.63). Cohen and Levintal further argue for the need for an absorptive capacity's presence for this knowledge transfer to occur (1990). This means that if the entities do not have the necessary technological or organizational capabilities, then the knowledge transfer may be delayed or completely prevented. Building on top of these notions, Boschma further argues for a close enough cognitive proximity, meaning the entities involved in the process need to have a certain level of organizational and technological capabilities (2005). As stated previously, different types of proximity are highly interconnected. In this case, institutional proximity is highly relevant. As institutional proximity focuses on the complementarity of institutional capabilities, it is argued by Boschma that closer institutional proximity is favorable to a certain extent (2005). Referring back to the CVC's position as a communication tool, the interviewee clearly states that they have a mismatch between how two institutions may operate, and the difference between each one's organizational capabilities. So the interviewee argued that placing the CVC between these two institutions will increase the learning between firms and increase the compatibility. For this specific case, the goal of the CVC would be to start the communication and enhance the learning process between two parties with different characteristics, as otherwise, both the firm and the startup may fail fail to reap benefits of working together and ultimately the technology may not live upto its potential. In other words, one can argue that the CVC, in this case, acts as a tool that aims to increase the knowledge shared between the two by enabling each institution to get to know each other's organizational, technological, and institutional capabilities through setting up a physical location.

This case can be further explained by the following statement: CVC brings together the two entities where they directly learn from each other on their institutional capabilities such as how they operate, their routines, the structures, etc… which would mean narrowing the institutional proximity. Intertwined with this aspect, the close institutional proximity also allows the firms to develop their technological and organizational capabilities, meaning their cognitive proximity is also narrowing. As it remains, there is a distance between firms and startups. In this condition, CVC may function as a bridge between institutions, enabling a narrower proximity and thus, a higher absorption capacity. This leads to a higher potential for learning. So the CVC narrows both the cognitive proximity and institutional proximity, or paraphrasing the

interviewee, teaching the startups and the parent firm how to communicate with each other and how to learn more effectively from each other in a physical location.

Moving from unrelated variety to related variety, the rest of the section will break down the findings through an industrial diversification lens. Skill relatedness, technological relatedness, and product relatedness will be employed in analyzing the empirical evidence through a related variety approach.

First, skill relatedness argues that firms will diversify into new sectors where they can leverage their existing human capital (Neffke & Henning 2013). This idea underpinned the decision-making process by CVC. When asked about the key qualitative factors a CVC looks at during an investment decision, the unanimous answer was the team. All of the interviewees immediately highlighted the importance of the team. Under team, the CVCs stated that domain expertise was a key factor they would like to see. Some interviewees continued to state that domain expertise was the first metric they evaluated. This process can be explained through the skill relatedness concept. Given that human capital is a resource, understanding the resource-based perspective is important, especially since resource base perspective underpins skill relatedness. It is argued that through the resource-based perspectives, the firm will justify its diversification decision by tying the decision to already existing resources (Neffke & Henning 2013). Building on top of this idea, skill relatedness argues for leveraging the already existing human capacity to diversify.

In this specific case, CVC will enable this process through two different ways, both of which will have the domain expertise of the team at its core. Initially, the CVC can invest in spin-outs of its own parent firm. Through this approach, CVC is able to have a clear overview of the team and their domain related experience. As the former employees of the parent firm have the necessary domain knowledge to build a related technology externally, the CVC may capitalize on this opportunity and leverage the already existing human capital. Through spin-out investments, the CVC enables the firm to further leverage already existing human capital. This is a direct application of skill relatedness into firm diversification through CVC.

The other approach is that CVC would like to invest in teams that already possess the related skills and experiences, however, they are not a part of the firm's initial human capital. This means that CVC will serve as a tool that potentially broadens the human capital without necessarily spending resources to train them in the first place. Since the team comes externally,

skill relatedness can still be applied as the firm leverages the existing capital, however, on the firm level, the firm does not need to deploy further resources to build the skills initially. Instead of only looking to leverage human capital that exists internally, this approach gives the parent firm an option to extend its net and capitalize on existing human capital in the border ecosystem. In other words, the teams that possess domain experience are a significant indicator for a positive investment decision, which means that the underlying thought of CVC during this process is capitalizing on already existing skills in the wider ecosystem.

So skill relatedness will affect the decision-making processes on two significant levels. On the firm level, spin-outs can be viewed as a direct result of a firm's wish to capitalize on already existing resources. Additionally, CVC creates further options to utilize external human capital in the external ecosystem, by investing in the teams that already possess experience. Skill relatedness will underpin the decision-making as CVCs are likely to invest in teams that already have the competencies.

It is important to highlight that through the answers, emphasis on unrelated combinations has also emerged. It has been stated that besides the team's domain experience, the presence of diverse experiences is also an important factor for a positive investment decision. This means that Boschma's approach to combining unrelated skills for innovation (2005) will also support the firm's relatedness in leveraging human capital in the region. One interviewee stated that only the existence of similar skills may limit the team's capacity to innovate, and a set of diverse experiences can combine for further innovation. This marks the way unrelated diversity plays into skill-relatedness in decision-making, as the firms still would like to capitalize on domain experience, but to an extent, some may be looking for further diversity of experience and skills in a team.

Technological relatedness is the second type of relatedness that can be used to explain certain decision-making in CVCs. As previously stated, firms diversify their technology in a purposeful way (Scott 1993) and technological relatedness is due to learning processes and can be understood through three categories: knowledge proximity, knowledge commonality, and knowledge complementarity. This section will only focus on technological relatedness through knowledge proximity.

Knowledge proximity is based on local learning with the underlying idea being firms focus on new technologies that are similar to technologies the firm is working on. This means

that firms are not necessarily investing in the most profitable technologies but rather are bounded to technological domains (Breschi et al 2003; Nelson & Winter, 1982). This feature can be seen in two core behavior of CVCs. Initially, CVCs are bounded to invest within the firm's mandates. As all interviewees have stated, CVCs invest in core business-related technologies or ideas. A fitting example would be what one interviewee stated. Their CVC is allowed to invest in related technologies on two specific verticals. Without the strategic value, the CVC is not able to make the investment. Further looking into what the interviewee stated, the technology has to be something the parent firm can use within their domain either now or in the long run. This points out the fundamental nature of knowledge proximity under technological relatedness. As the interviewee said, they are not necessarily making the investment in the most profitable technology, but rather a technology that is strategically fitting within their two core operation verticals. This also plays into the long term focus of technological relatedness with the idea that firms diversify their technologies purposefully, as CVC emerges as an actor that finds these technologies and invests in them, creating the potential for the parent firm to further interact with them.

Furthermore, strategic fit as a key concept can be understood through this lens as well. 4 of the interviewees have argued the need for a strategic fit when making an investment decision by stating that the technology or the idea can be used or be fitting with the activities of the firm. Two of the interviewees further stated that they would check in with their business units to further see a fit and a need. This idea can be understood through knowledge proximity of technological relatedness as CVC actively looks for and invests in technologies or ideas that directly fit the needs of specific business units. In other words, CVCs may be bounded to invest in certain technological domains with a long term goal of purposeful diversification. In other words, the CVC activity through the technological relatedness can be explained in the following way: a firm looks for purposeful diversification in the technology domains they operate in, and CVC decision-making will be directly affected by this approach of the parent firm as CVCs have stated that strategic purpose if a key concept they pay attention to when making an investment decision.

This argument can be supported by Breschi et al.'s findings stating that firms diversify their technologies over other related technologies, rather than random technological diversification (Breschi et al. 2003). During the interviews, the importance of the technology has

been stated specifically by 4 interviewees. However, it is important to note that this does not mean they focus on any unique technology. As they have previously stated that they have to invest in startups that are related to the core business of the parent firms, technological uniqueness gains even more relevance. This means that firms look for unique technologies that are related to the domain they work in, that may bring potential strategic value as well as financial value. This notion supports that CVCs' decision-making process may be underpinned with the idea that they would like to find relevant technological fit for the parent companies' technological diversification, in other words, provide technologies that can be considered technologically related for a long term purposeful technological diversification.

Building upon this notion, product relatedness will be applied to the findings next. Product relatedness brings a regional view to CVC behavior. Referring back to Hidalgo et al. forest analogy (2007), product relatedness may have implications for firm strategy ergo CVC activity. Considering the proximity concept referred to by Hidalgo et al (2007), the goal of the firm in order to innovate more would be to be closer to more and more products. So they will look for methods of interacting with more and more trees as they are the monkeys in the analogy.

CVC may emerge as one of the methods that frim utilize to interact with more firms, decreasing the proximity between products. A direct example could be CVC which provides a physical space for the firm to interact with startups and for the startups to interact with each other. An interviewee stated that a key goal of the CVC was to bring together ideas and technologies under one roof, creating an ecosystem. While making investment decisions, they emphasize the potential interaction between the new technology and the firm. Another interviewee stated that they only invest in firms when they believe there can be a mutually beneficial relationship, meaning the firm can benefit from new technology, and the new technology can benefit from the firm and its resources in return. Product space analogy can be used to provide an explanation on the regional level, meaning that CVC can enable the firm to interact with more and more relevant products and technologies, which will in return enable parties to further innovate. So CVC's decision to invest in a technology may be explained through this rationale: if firm A receives an investment from the CVC, then the proximity between their technology and the first practices will decrease, meaning there will be higher learning and innovation. As the CVC invest in multiple firms such as the firm A, they will be

placing the parent firm in a densely populated part of the forest, meaning they will have more products to swing to and learn from.

Empirical data that further supports this theoretical role of CVC would be an interviewee statement on the position of the CVC to boost internal innovation. As the CVC decreases the proximity between products and the firm, the parent firm is able to increase its learnings and thus increase its innovation activities.

Through an evolutionary perspective, the processes explained above provide how CVC may play a role in regional diversification. Initially, CVC agency on the firm level, specifically for the parent firm, can be understood through open innovation, as CVC is one of the tools that firms may deploy to increase external innovation. Real options theory further the benefits by allowing firms to invest in more, and diverse technologies and ideas in a given domain. From a regional perspective, industrial diversification, related and unrelated variety, can be used to understand firm-level movement through an evolutionary economic context. In other words, CVCs' agency for evolutionary economic geography can specifically be understood through using proximity, skill relatedness, technological relatedness, and product relatedness, building on top of CVC agency in open innovation and real options theories. Combining these blocks reveals the CVC's roles in evolutionary economic geography. So in the next section, the implications will be explained.

4.2.3. Implications

The previous section has applied open innovation theory, real options theory, cognitive and institutional distances, skill relatedness, technological relatedness, and product relatedness to the findings of the research. These theories were used to understand the position of the CVC under the parent firm, as well as the key qualitative factors that effect decision-making. This section will discuss the implications of the analysis.

On the firm level, through open innovation theory combined with real options theory, firms attempt to make the most of external innovation opportunities. This means that firms will allocate CVCs as channels that enable the parent firm to reap benefits of external research and development, technologies, market movements, and identifying potential industrial problems through initially engaging, then investing a small amount of capital into them. The next step is to question how they decide on who to interact with, which technologies to explore and what do

they eventually invest in. Through applying related and unrelated diversity concepts that are listed above, the analysis highlighted that firms will engage with, learn from, and invest in:

1. Other firms that have close cognitive and institutional proximity;
2. Technologies that the parent firm can capitalize on through already existing human capital,
3. Technologies that are related to the core business of the firm,
4. Products that may potentially provide further opportunities of innovation thought related and unrelated combinations through product relatedness.

In other words, initially the *why*, then the *how,* and *with whom* are highlighted.

As a result of these interactions, the parent firm may diversify into related industries. So from an evolutionary economic geography perspective, CVCs' engagement with and investing in ideas and technologies that are related to the business and core technologies may lead firms to pursue new opportunities in new industries while still being highly relevant to their core businesses. The agency of CVC in this process is to initially find these related technologies, evaluate them, interact with them, enable learning through decreasing cognitive and institutional proximity, then invest in the ones that they believe are fitting for their parent firms' criteria and that can provide strategical and financial returns. Since these investments are small-scale, the firm is able to invest in a large number of options and still has the opportunity to further pursue the ones they find more valuable for various reasons. In other words, firms can invest in technologies or ideas that may create a potential diversification to an area that is related to their core businesses, or potentially become a step in the company's advancement in diversifying into a related industry.

This idea is in line with Neffke, Henning & Boschma's argument on firm diversification. They argue that firms are likely to branch out into industries that are related to pre-existing industries over a period of time (2011). The analysis has used three relatedness categories as well as referring to unrelated variety and drawing from open innovation literature and can argue that CVCs agency in this process is to potentially become a tool or a channel, providing the opportunity for the parent firm to identify, interact, learn from, and potentially invest into technologies or ideas that may result in the firm's diversification to the related area.

A further implication of viewing CVC decision-making through an evolutionary economic geography perspective relates to path dependency. The general notion of path

dependency is that: a process or a system is path-dependent when the outcome is affected by the process or system's own history (Martin and Sunley 2006). Martin further built on this statement, challenging the early notion of path dependency, and suggested a canonical model. He argued for the complexity of local economic systems. Firms in these systems face different pressures for change and respond at different rates, thus a canonical model that argues for continuity and change in the industry is more fitting (Martin 2010). Under the wide concept of path dependency, industrial diversification can be viewed as one of the many ways firms respond the pressures. Considering Boschma's argument that new industries can be built on the knowledge based resources that have been built up by existing industries (2010; Audia et al. 2006; Klepper 2007) one can argue that firms' diversification efforts to related industries are a critical part of the canonical path dependency model. Industrial diversification may occur to different extents in preformation, early path creation, path development, and further on. Firms will play a key role both as the entities that develop new technologies as well as entities that adopt and adapt to these new technologies.

As argued previously, CVCs emerge as entities that facilitate a potential diversification of the parent firm into a related industry in the long run. In other words, CVCs as actors play key roles in potentially identifying and interacting with new technologies that may lead firms' diversification efforts that underpins the potential path dependency stages. So to break down the canonical path dependency process, there are numerous actors that adopt and adapt to new technologies, their cumulative action may lead to the creation of new path dependencies. When looking into this process, industrial diversification may be understood as one of the ways they adopt and adapt to new technologies as well as potentially innovate and lead the new technologies. When focused further on the actors that play a key role in this process, CVCs emerge as one of the entities that have the agency to invest in relevant technologies that the parent firm thinks are relevant to their process of diversification. So from a bottom up approach, CVC plays a role as the connector between parent firms and the rest of the economic ecosystem, enabling the interactions and processes for the firms individually to innovate into, adapt, or adopt new technologies. In the long run, firms may diversify into these relevant industries, and in a longer period of time, through cumulative action of multiple diversification processes, new path dependencies may emerge.

5. Conclusion

This thesis attempted to answer: *To what extent can the decision-making process in corporate venture capital investments be understood from the perspective of evolutionary economic geography?* In order to answer this question, the first relevant theory was highlighted. Following a top-down approach, an evolutionary perspective in economic geography was introduced. Then path dependency, specifically the canonical path dependency model by Martin (2010), and industrial diversification was explored. Under industrial diversification, related and unrelated varieties were explored. Key concepts under these approaches were cognitive and institutional proximity, skill relatedness, technological relatedness, and product relatedness. Finally, at the firm level, open innovation theory and real options theory were highlighted. Through these concepts, this thesis drew from evolutionary economic geography literature as well as corporate venture capital literature. Having gone through this literature, this thesis focused on the agency of CVC evolutionary economic geography. As this topic remains relatively unexplored, this research's goal was to explore the empirical process of decision-making and understand its effect on evolutionary economic geography.

The data was collected through conducting semi-structured interviews. The pool of interviewees was made up of 6 CVCs that operate under large firms. While making the selection the market share of the parent company was emphasized in order to be able to represent a significant amount of the CVCs in Norway. Having conducted these interviews, findings were listed and the analysis followed a bottom-up order.

Initially starting with open innovation theory and real options theory, this thesis argued for open innovation theory in combination with real options theory as a way of understanding CVC as a tool and a channel to benefit from external innovation practices. Then in order to focus on industrial diversification, related and unrelated variety concepts were applied to the findings.

Through the analysis, this thesis argued the following per concept:

1. CVCs enable further learning through narrowing cognitive and industrial proximity to increase learning and knowledge spillovers.
2. Through skill relatedness, CVCs will aim to increase the potential of capitalizing on existing human capital in the ecosystem by investing in teams that have relevant domain experience to the parent firms' core businesses.

3. Through technological relatedness, CVC will invest in technologies that are related to the core business technologies to further their innovation.
4. Through product relatedness, CVCs will invest in products that narrow the gap on related technologies to further benefit internal innovation.

Overall, it is argued that CVCs emerge as a tool and a channel that enables interactions, and learnings between the parent firm and the rest of the ecosystem, as well as enabling diversifying into related industries through identifying and investing in technologies that either can be directly used to branch out into a new and related industry or combined with existing routines and technologies to branch out in a new and related industry.

Then this thesis argued for the potential implications of this process, stating that in a longer period of time, this process may set the scene to or contribute to new path developments. So returning to the main research question: *To what extent does the decision-making process in corporate venture capital investments understood through evolutionary economic geography?*, CVCs agency enables firms to potentially diversify into related industries by either investing in new technologies or learning from the external players, as CVC emerges as a tool or a channel that operates between the parent firm and the rest of the ecosystem. In other words, this thesis contributes to the agency literature under evolutionary economic geography by focusing on the agency of CVCs.

Lastly, this section will highlight further research areas. This paper encourages focusing on the agency of the CVCs further. The factors that are significant in different series when CVCs are making an investment decision and its implications for evolutionary economic geography need further exploration. This may provide a detailed understanding of the factors that are important at different stages, meaning at different risk levels. Further research on CVCs' ability to innovate in line with open innovation theory and implications on regional economic development also remains an unanswered question. Finally, this thesis encourages the creation of an overview of CVCs in the Norwegian ecosystem and a competitive review of IVCs vs CVCs and their implications on regional innovation. CVC and IVC are important parts of the innovation process and play a key role in regional economic development. This thesis has taken a step toward understanding the CVCs agency under EEG. As VCs sectors agency still remains mostly unexplored, EEG will benefit from understanding how a key component in innovation creation and nurturing affects the processes that occur at the regional level.

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Appendix 1: Information Letter

Agency of Corporate Venture Capitals: Understanding Corporate Venture Capitals' Decision-Making Process through Evolutionary Economic Geography

You are being asked to participate in a project that aims to understand the decision making process behind Norwegian Corporate Venture Capitals and to highlight the connect/disconnect between the Evolutionary Economic Geography and empirical practices. This document provides information regarding the description, goal of the project and data privacy and protection.

Purpose of the Thesis

In Evolutionary Economic Geography (EEG), the focus is to understand how economic activity evolves over a given time in a given geography. So EEG concerns itself with this innovation process, actors, and a web of interactions between actors and processes. This process leads to formation of new firms and change the context the resources are deployed. Naturally, decision making becomes a critical part of resource deployment such as capital to support innovation. However, the current literature takes a superficial look to the decision making process under EEG. What remains unknown is how these happen. There is very little attention paid to the key decision makers, and the process of decision making on why the capital goes to where it goes. Innovation happens at different levels and layers. A key event in this process it the capital flow to kick start innovation and a key player is the Corporate Venture Capitalist. This masters thesis form UiO The aim of this project is to understand the real life practices that goes into the venture capitalist decision making at CVCs. It is important to note that the goal here is to understand if the real life practices are, in-fact, aligned with what the Evolutionary Economic Geography perspective suggests. So project will interview decision makers in Norwegian Corporate Venture Capitals and analyze:

- Highlighting common and frequent themes between interviewee responses
- Common themes between Interviewee responses and the Evolutionary Economics Perspective

In short: the project will highlight the dialogue between empirical and theoretical studies

of Venture Capitals through an Evolutionary Economic Geography perspective.

Controller and Supervisor

Department of Sociology and Human Geography in University of Oslo is responsible for this thesis (Data Controller)

This thesis is supervised by Professor Sverre J. Herstad

Why are you asked to Participate?

In direct relation to the goal of this thesis, decision-makers are the key actors in providing the necessary information on the process of investment decisions on innovations. The scope of this project is CVCs in Norway. Your involvement will include:

Individual Interview (approx. 30 min)

Participation in this project is voluntary

If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you choose not to participate or later decide to withdraw. Please do not hesitate to contact me with any questions regarding this.

Personal Privacy, Use, and Storage of Your Personal Data

Data Collection and Processing ill be in accordance with the General Data Protection Regulation. Your data will be used for the purposes specified here:

Data will be collected through audio notes and will be stored through encrypted software in regulation with the GDPR

Where can I find out more?

If you have questions about the project or want to exercise your rights, contact:

Student, University of Oslo: Ege Akinci.

(By email: egea@student.sv.uio.no)

Supervisor, University of Oslo: Sverre J. Herstad.

(By email: sjherstad@sosgeo.uio.no)
Our Data Protection Officer: Roger Markgraf-Bye.
(By email: personvernombud@uio.no)

Consent form:

I have received and understood information about the project *Agency of Corporate Venture Capitals: Understanding Corporate Venture Capitals' Decision-Making Process through Evolutionary Economic Geography* and have been given the opportunity to ask questions.

I consent to:
Participate in:
• Semi-structured interviews
• Provide information about me that can be published in a way that cannot reveal my identity.

Consent for my personal data (e.g. contact information) and digital recordings to be stored until the end of the project.

Appendix 2: Interview Guide

1. What is the role of the CVC arm in the parents companies overall strategy?
2. When evaluating companies, do you prioritize, and if so which one is more important, between strategic potential that a startup may provide to parent firm the vs the financial return potential of a startup?
3. What is your approach in investing in Spin-ins, spin-offs, and spin-outs?
4. What are the mandates implemented for your CVC and what are some challenges you face from the parent firm side?
5. What are the key qualitative factors you look at in investment decisions?
6. What are the key qualitative factors for a no-investment decision?
7. What do you think are the benefits of a startup working with a CVC compared to a VC, and the disadvantages?
8. What is your approach to startups and technologies that may be potentially disruptive in you industry and compete with you?