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# The Role of Sustainability in CVC

*A Multiple Case Study of Oil Majors*

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## Executive Summary

We know from previous research that corporate venture capital (CVC) investments are used by companies as a strategic tool to obtain novel technologies to improve the innovativeness of the corporation. Using a theory building approach, with a mixed method, analyzing a sample of five oil majors, this thesis extends that notion by bringing sustainability to the table and investigating the role that sustainability plays in oil major CVCs. Our findings show that for oil major CVCs, sustainability plays an important role in the screening process and investment decision of ventures.

Our research show that oil major CVCs are moving towards making more sustainable investments. Furthermore, we find that sustainability is considered early in the screening process, and that it is used as a tool to access new sustainable solutions. Moreover, our findings propose that oil major CVCs feel both internal and external pressure to change their investment behavior. Lastly, our research proposes that the industry is experiencing a change, with sustainable ventures reaching new heights in number of deals and deal size.

Our findings contribute to research in several ways. Firstly, it contributes to CVC research by deploying it in a context novel to CVC research: the oil and gas industry. This is a particularly interesting industry, due to the recent pressure on oil majors to find new solutions to become more sustainable. Further, the addition of sustainability to the corporate objectives for undertaking CVC investments is novel and contributes to the CVC research. Moreover, we contribute to *strategic* corporate social responsibility (CSR) research by exploring how oil majors strategically use CVC to invest in sustainable ventures. Lastly, we extend the research on CSR through the lenses of stakeholder theory, by proposing that both internal and external stakeholders are pressuring the oil majors to change.

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Oslo, 15.06.2022

*Linnéa Filippa Bjørnstad & Bjørnar Solheim Stevning*

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# 1 Introduction

For the last two decades, sustainability and climate change have received increased attention and become frequently discussed topics. In 2015, the Paris Agreement was signed, declaring that actors at all levels need to contribute to reach the sustainability goals (United Nations, n.d.). The EU was set on being climate neutral by 2050, which meant a drastic change for all countries involved (European Commission, n.d.-a, n.d.-b). This involved a substantial reduction in GHG emissions, and most specifically, carbon emissions. Some industries have been strongly affected by this, with one of the most severely impacted being the energy sector, dominated by high carbon emitting sources like coal, oil and gas. The energy sector has been faced with a two-front pressure and expectation to change, with policy makers and governments on the one hand, and customers and employees on the other (IEA, 2020a). To become more sustainable, the energy sector needs to dedicate vast investments to innovation, in order to find new sustainable solutions. However, reports show that large oil and gas (O&G) companies (commonly referred to as oil majors) currently only invest 1 % of their capital expenditure in areas outside their core operations (IEA, 2020a). Reaching the goal of becoming net zero carbon emitters demands the energy sector to dedicate substantially more capital into new technologies and infrastructure (IEA, 2020a, 2020b).

A method for companies to access novel technologies is to invest in minority stakes in entrepreneurial firms, referred to as corporate venture capital (commonly abbreviated CVC). CVC investments, i.e., “minority equity investments by established corporations in privately held entrepreneurial ventures”, are commonly used by firms as a form of company innovation (Drover et al., 2017; Dushnitsky, 2012, p. 1; Röhm, 2018). The CVC line of research has extensively covered many aspects of the objectives and innovative performance of the investments (Benson & Ziedonis, 2009; Dushnitsky & Lenox, 2006; Ernst et al., 2005; Keil et al., 2008; Smith & Shah, 2013). In terms of investment objectives, CVCs differ from independent venture capital (IVC) as they are usually investing with a strategic motivation (Dushnitsky & Lenox, 2006). From research, we know that corporations use CVC as a tool to access novel technology and increase firm innovativeness



(Dushnitsky & Lenox, 2005a; Ernst et al., 2005). Furthermore, a growing body of research is on corporate social responsibility (CSR), i.e., “actions that appear to further some social good, beyond the interests of the firm and that which is required by law” (McWilliams & Siegel, 2001, p. 117). Literature finds that CSR, or sustainability, can be used to achieve a competitive advantage, as obtaining CSR could be equivalent to obtaining a valuable resource (Ioannou & Serafeim, 2019; McWilliams et al., 2006; McWilliams & Siegel, 2011).

Battisti et al. (2022) combined these two lines of research and found that CVC investments have a positive effect on the CSR performance of the company. However, beyond this study, the two lines of research have seemingly not intersected, leaving the role of sustainability in CVC investments an uncharted territory. We want to explore this gap by investigating whether companies use their CVC as a tool to access solutions to improve the sustainability of the corporation. Thus, this thesis aims to investigate the following research question:

*To what extent do corporate venture capital investors consider sustainability in their investment decisions?*

Furthermore, the O&G industry was a natural industry to study, given the recent need to change toward becoming more sustainable (see further elaboration in the next section). In addition, oil majors are some of the largest companies in the world, in which CVC activity is common (CB Insights, 2022a). Moreover, the O&G industry is a seemingly unexplored industry within CVC literature. Thus, we want to extend the research in this field by deploying it in an O&G context.

Our research shows that oil major CVCs are moving toward making more sustainable investments. Furthermore, we find that sustainability is considered early in the screening process, and that the CVC used as a tool to access new sustainable solutions. Moreover, our findings propose that oil major CVCs feel both internal and external pressure to change their investment behavior. Lastly, our research proposes that the industry is experiencing a change, with sustainable ventures reaching new heights in number of deals and deal size.

Our findings contribute to research in several ways. Firstly, it contributes to CVC research by deploying it in a context novel to CVC research: the oil and gas industry. This is a particularly interesting industry due to the recent pressure on oil majors to find new solutions to become more sustainable. Further, adding sustainability to the corporate objectives for undertaking CVC investments is novel and contributes to the CVC research. Moreover, we contribute to *strategic* CSR research by exploring how oil majors strategically use CVC to invest in sustainable ventures. Lastly, we extend the research on CSR through the lenses of stakeholder theory by proposing that both internal and external stakeholders are pressuring the oil majors to change.

The thesis is structured in seven sections. Firstly, we give a brief introduction to the topic of the energy transition for contextual understanding. In section 2, we present a review of prior literature on the relevant topics for this thesis and present the motivation for the research question. Section 3 presents our methodology: the research design, data collection, and data analysis. In section 4, we present the five cases, followed by section 5 which we introduce our findings supported by our data collection. Section 6 provides a discussion in which we position our findings in the conversation of research. Finally, the thesis ends on a conclusion with direction for future research.

### ***1.1 The Energy Transition***

For the last decade, the attention to climate change and global warming has significantly increased. With large players, like United Nations and the European Union, in the front, using regulations and policy, the energy transition has undoubtedly made its mark on everyone's agenda (Greenpeace European Unit, 2022; United Nations, n.d.). The COP26 concluded in November 2021, where almost 200 participating countries decided on the Glasgow Climate Pact (United Nations Climate Change & UK Government, 2021). The goal of the pact was to continue working towards keeping the 1.5° C goal towards 2050. The 1.5° C goal is to lower greenhouse gas emissions so that the rise in global temperature does not exceed 1.5° C before 2050 (IEA, 2021b). However, at the current pace and energy mix, the average global temperature will already reach a 1.5° C increase by around 2030 (IEA,

2021b). To close the gap between the current track and the Glasgow Climate Pact's goal, about USD 4 trillion needs to be invested into clean energy initiatives and infrastructure before 2030.

Today, fossil fuels account for about 80% of the global energy supply mix (DNV AS, 2021). With current energy supply and demand, fossil fuels will gradually lose their position over time. However, they will still retain a 50% position in 2050, in which the goal of the Glasgow agreement will not be reached. Therefore, O&G being a significant contributor to carbon emissions, needs to be replaced by renewable, emission free solutions (Beck et al., 2020; IEA, 2020a). However, the skillset and experience that the oil majors possess can be highly beneficial in the transition (IEA, 2020a). Experts and climate activists are therefore torn between the question; should O&G be viewed merely as the reason for climate change, or should they be part of the solution? In their report “The oil and gas industry in energy transition” IEA states that a large portion of the O&G industry can be used to accelerate the energy transition (IEA, 2020a). However, one of the key findings is that until 2020, oil majors spent less than 1 % of their capital expenditure on industries and solutions outside their core business. Hence, in order for the oil majors to be part of the solution, more dedication must be shown in terms of investments going into the clean energy space. The following section will review prior literature on CVC and CSR.

## **2 Literature review**

In a recent study, Battisti et al. (2022) investigated the relationship between CSR, i.e., sustainability, and CVC. Building on the RBV framework, they wanted to find out whether CVC investments could help the company in gaining a competitive advantage in the subject of CSR. Their findings show that CVC investments indeed have a positive effect on the CSR performance of a company, indicating that there is a relationship between the two (Battisti et al., 2022). However, beyond this study, the CSR and CVC bodies of research have seemingly not intersected. This thesis aims to answer the research question: *To what extent do corporate venture capital investors consider sustainability in their investment decisions?* To address the historic research building up to that research question, we will look at the two streams of literature:

CVC and CSR. Firstly, we follow the historical development and main characteristics within these two streams separately. Then, we look at them in conjunction and find areas that need further investigation, and thus creates the motivation for our research question.

### ***2.1 Corporate Venture Capital***

CVC investments, defined as “minority equity investments by established corporations in privately held entrepreneurial ventures”, first gained traction in the 1960s. Since then, the investment patterns have fluctuated, and have been said to be moving in *waves*, in which there was a significant increase in investments (Drover et al., 2017; Dushnitsky, 2012, p. 1; Röhm, 2018). In 2012, Dushnitsky stated in his article that we were just seeing the start of the fourth distinct wave (Dushnitsky, 2012). The CVC literature commonly distinguishes between three actors in a CVC investment: the corporation, the CVC unit of the corporation, and the venture firm (Drover et al., 2017). The CVC structure uses elements from the IVC structure, such as autonomous organization, specialization, investment staging, incentive programs, and investment syndication, which literature has shown to improve the performance of the CVC both strategically and financially (Hill et al., 2009). In terms of employment, some CVCs choose to hire long-term corporate employees, which ensures that the unit operates in line with the corporate and the internal stakeholders (Drover et al., 2017; Souitaris & Zerbinati, 2014). Others choose to hire venture capital experts to create external bonds (Drover et al., 2017)

CVC initiatives grew as corporations started realizing that innovations could be found beyond the boundaries of the firm. As a result, the term open innovation, i.e., innovation found outside the firm, was introduced as opposed to the traditional closed innovation, i.e., internal R&D initiatives (Chesbrough, 2006). With open innovation, firms could attract new knowledge through e.g., mergers and acquisitions or alliances. However, the difference between CVC investments and other forms of interorganizational relations is mainly that CVC investments exclusively describe a relationship between a large corporation and a young entrepreneurial firm (Dushnitsky, 2012; Dushnitsky & Shaver, 2009). The heterogeneity, and thus differences between the two partners is what makes CVC partnerships such complex

(Dushnitsky & Shaver, 2009). Furthermore, CVC differs from other interorganizational strategies as it usually seeks to explore new technologies (Benson & Ziedonis, 2009; Röhm, 2018). In addition, CVC investments are preferable, over e.g. acquisitions, if there are external factors that create higher risk in the market, as the investment is a minority stake and thus reduces risk (Tong & Li, 2011). Moreover, CVC investments differ from independent venture capital funds (IVC) mainly because in CVC the investing firm is a non-financial corporation, where the venture investments are not within the core activities of the firm (Chemmanur et al., 2014). Another main difference is that IVC funds mainly have the single objective of obtaining a financial return on investment, while CVC investments aim to achieve strategic benefits or synergies from the investment, in addition to financial returns (Chesbrough, 2002). Thus, from the venture firm perspective, having a corporate investor rather than a purely financial VC usually offers complementary or similar asset knowledge and technical assistance (Röhm, 2018).

Several researchers have studied which conditions foster a CVC investment, and the corporate motivation for conducting CVC investments. Basu et al. (2011) studied the resources and environmental factors that make companies engage in CVC activities. Their findings suggest that companies operating in industries that are constantly changing and have a rapid change in technology, high competition and weak appropriability to be more drawn towards engaging in CVC investments (Basu et al., 2011). Moreover, Dushnitsky and Lenox (2005a), identify the firm and industry level conditions that foster CVC activity. They find the firm-level resources of absorptive capacity and availability of cash flow, and the industry-level factors of technology ferment and patenting activity, role of complementary assets, and intellectual property protection to affect the level of CVC. Lastly, as mentioned above, external risk in the industry and risk associated factors positively affect the level of CVC (Tong & Li, 2011).

Much early research was done on the underlying objectives for CVC investments. CVC investments first came to life as corporations started replicating the VC model in order to make financially attractive investments (Dushnitsky, 2012). Early research therefore found that CVC investments with a financial objective were deemed most

successful (Siegel et al., 1988). Siegel et al. (1988) found that the autonomy of the venture department and the expertise of the investors were two crucial factors for the success of the investment. They also found that the motivation of the investments should be the financial gain, in order for the investment to be successful. However, the corporate objective emerged and researchers found that corporations have a dual motivation when investing in CVC, both financial and strategic (Sykes, 1990).

Extending that notion, Ernst et al. (2005) identify five different strategic objectives for investing in CVC. First, corporations invest in CVC in order to monitor innovations and potential technological developments that may be of future competition (Ernst et al., 2005). In other words, they are used as a window to new innovations (Benson & Ziedonis, 2009). Building on this, Benson and Ziedonis (2009) find in their research of 34 corporate investors that CVC investments deem the most prominent results when used as a window on new technology. In addition, they find that CVC efforts provide the highest return on investment when they are used in conjunction with internal R&D efforts, i.e., when the CVC investments increase relative to the total R&D spending. For the three next motivations, Ernst et al. (2005) state that these are to obtain skilled human capital, search for growth areas for the corporation, and increase the entrepreneurial culture within the corporation. The last strategic goal of CVC investments is to increase the efficiency of internal R&D (Ernst et al., 2005). Furthermore, Dushnitsky and Lenox (2006) find that investments with the objective of increasing the corporation's innovativeness are more likely to succeed than those with purely financial objectives. Moreover, a study by Gaba & Bhattacharya (2012) finds that if the corporation has an aspiration of reaching higher innovation goals, the likelihood of CVC investments increases. Thus, aspiring to become more sustainable is a driver for CVC activity.

Many researchers have studied the performance of a CVC investment. Early research found that investments with financial objectives to be the most prominent ones when using the IVC framework to deem an investment successful or not (Siegel et al., 1988; Sykes, 1990). However, the performance of CVC investments is more complex than solely a financial return on investments. The performance of a CVC investment based on strategic objectives will provide an indirect return on investments, as with

any other R&D investment (Benson & Ziedonis, 2009; Dushnitsky & Lenox, 2006). Thus, measuring the performance of a CVC investment can be quite challenging (Dushnitsky, 2012).

For firms investing in CVC with the main goal of reaching new innovation, the corporation's ability to obtain that innovation is incredibly important in order for the investment to prove any return (Cohen & Levinthal, 1990; Dushnitsky & Lenox, 2005b). Teppo and Wüstenhagen (2009) found that the organizational culture of the corporation is a key factor that contributes to the survival of the CVC unit. They find that many corporations struggle to implement and learn from the venture firm, with their organizational culture being the biggest barrier. Following that line of thought, Dushnitsky and Lenox (2005b) identified the importance of a corporation's ability to acquire external knowledge and integrate it into the firm, namely their absorptive capacity, for the success of a CVC investment (Cohen & Levinthal, 1990). Their findings show that the success of investments with the goal of serving as a window on technology varies across industries. It only shows significance for industries with weak intellectual property regimes (Dushnitsky & Lenox, 2005b).

Furthermore, the level of relatedness between the companies in a CVC relationship has proven to have a positive effect on innovation performance of the investments, i.e., companies from related industries prove higher performance (Keil et al., 2008). In a longitudinal study of the telecommunication industry, Wadhwa et al. (2016) test the relation between innovation performance and diversity in portfolio and find that there is a U-shaped relationship between the two. Further, they find two characteristics by the portfolio partners that affect this relation, technological capital (ventures technological knowledge) and social capital (collaborative, interorganizational knowledge-sharing relationships in which ventures engage) (Wadhwa et al., 2016). Building on that notion, in the context of the medical device industry, Smith and Shah (2013) study how user innovation is implemented in the corporation in relation to other sources of external innovation. Their findings show that user innovations are incorporated into the corporation and used as a source to innovate the company.

Building on the previous literature, we know that CVC is used as a source for company innovation. However, hitherto this has not been studied in the context of the O&G industry and with the factor of sustainability. Adding those two conditions create a particularly interesting context: Firstly, the O&G industry is faced with increasing pressure to become more sustainable. In order to become sustainable, they need to innovate and search for new solutions to conduct business. Secondly, CVC is historically proven to be used as a tool to access novel technologies and increase the innovativeness of the company. Thus, examining CVC when combining sustainability as a motivation and O&G industry as a setting is a highly interesting subject. In the following section, we review the body of research on CSR and sustainability. The two bodies of research have little intersection from prior research, and thus our research aims to provide a steppingstone for closing that gap.

## ***2.2 Sustainability and Corporate Social Responsibility***

In the last decade, companies have begun to include sustainability, or more precisely, corporate social responsibility (CSR), in the context of corporate strategy (Ioannou & Serafeim, 2019). CSR runs along three dimensions; environmental, social, and governance (ESG). However, it is a complex concept, in which many definitions have been given, making it a difficult concept to measure (McWilliams et al., 2006; McWilliams & Siegel, 2001). One widely used definition is the one by McWilliams and Siegel stating that CSR is when a firm engages in “actions that appear to further some social good, beyond the interests of the firm and that which is required by law” (2001, p. 117).

Throughout the years, CSR has been viewed through several different theoretical perspectives that gives a view of the strategic implications of CSR (McWilliams et al., 2006). At first, scholars were quite skeptical towards the concept of CSR, looking at it through the lens of Agency Theory (Friedman, 1970). Through the lenses of Agency Theory, spending on CSR seems like a waste of corporate capital, as it could be put into making value for the company and its stakeholders. Friedman (1970) meant that CSR spending itself causes an agency problem. He saw CSR activities as something managers use to further their own careers at the expense of shareholders



capital. However, scholars became more positive toward CSR with time as it was viewed through Stakeholder theory. Freeman and Reed (1983) stated that corporations were responsible for meeting the needs of a bundle of actors which had an interest, i.e., stake, in the company. They termed these actors as the company's *stakeholders* (e.g., customers, suppliers, employees) (Freeman, 2010). This theory implied that CSR is a good thing for other stakeholders than only the stockholders, and that this was a way for the firm to keep all stakeholders pleased (Freeman & Reed, 1983).

Furthermore, scholars have studied the phenomenon through the resource-based view (RBV) of the firm (Hart, 1995; M. V. Russo & Fouts, 1997). The RBV framework sees the firm as a bundle of resources in which the firm needs to possess a resource that is valuable, rare, inimitable, and non-substitutable to obtain sustainable competitive advantage (Barney, 1991). According to the RBV framework, CSR could be a source of competitive advantage and thus affect firm performance. Baron (2001, p. 17) introduced the term *strategic CSR* as an explanation for why profit maximizing firms choose to invest in CSR. He stated that strategic CSR “is used to refer to a profit-maximizing strategy that some may view as socially responsible.” McWilliams and Siegel (2011, p. 1480) built on this notion and defined strategic CSR as “any “responsible” activity that allows a firm to achieve a sustainable competitive advantage, regardless of motive”. By use of the RBV framework, the authors suggest a structure to help managers determine the strategic value of CSR for their firm, and how it can help the company in achieving sustainable competitive advantage

Through the lenses of financial literature, much research has been done on the relationship between CSR and firm performance. Studying the financial effect of CSR spending is a complex subject that is difficult to measure, as CSR activities are not necessarily directly connected to the product or service sold, and such activities are usually intangible capabilities or resources (McWilliams & Siegel, 2011). In the early years, much inconsistency was found in the results of various research on the matter. Research found the relationship between CSR spending and financial performance to be positive, negative, and neutral correlated (Aupperle et al., 1985; Hannon & Milkovich, 1996; McGuire et al., 1988; Waddock & Graves, 1997).

McWilliams and Siegel (2000) studied this inconsistency by expanding the model that other studies had used. They found that the previous models had not included R&D spending, which turned out to be positively correlated with the corporate social performance of the firm. By adding this to the regression, they found no clear relation between CSR and firm financial performance. McWilliams and Siegel (2001) furthered this by looking at the relation between CSR spending and firm performance in conjunction with the level of spending a firm should use on CSR. They used a supply and demand function to determine that there is a profit maximizing level of CSR spending that would also benefit the shareholders of the firm. The framework suggests that increased CSR spending would mean higher costs but will, in return, provide higher revenue. Thus, companies that choose to invest in CSR will still have the same profits as those who choose not to do so, regardless of the increase in cost.

In more recent years, Eccles et al. (2014) have done a study on 180 firms, where half of the firms are termed “high sustainability companies” and the other half are termed “low sustainability companies”. Studying these companies over a period of 18 years, the authors got many interesting findings on how the two groups of firms differed. A key finding was that the high sustainability companies clearly outperformed the low sustainability companies both in the stock market and in accounting performance (Eccles et al., 2014). This suggests that the relation between CSR spending and firm financial performance has positively shifted over time, from having an inconsistent effect in the 1990s to becoming clearly positively correlated in more recent years. Fast forward to today, Ioannou and Serafeim (2019) found sustainability-based differentiation to be a factor for firms to achieve competitive advantage. Their findings suggest that the novelty of the sustainability action is crucial to provide a competitive advantage, as opposed to those firms who imitate other’s initiatives. This is much in accordance with what scholars have found earlier when studying CSR through the lenses of the RBV framework, in which a resource needs to be inimitable in order to provide sustainable competitive advantage (Barney, 1991; McWilliams et al., 2006; McWilliams & Siegel, 2011). This suggests that searching for sustainable innovations could provide firms with a competitive advantage, and thus be valuable for the firm's performance.

Sustainability as a strategic tool has been proven to provide favorable results. However, research has not been done on the O&G industry, and the role sustainability plays in that industry. We thus want to explore that relation, in the context of CVC.

### ***2.3 Sustainability in CVC***

Circling back to the research done by Battisti et al. (2022), the context of combining CSR and CVC is an interesting, yet uncharted territory within research. Their research shows that CVC investments, indeed, have a positive effect on the CSR performance of a company, which indicates that there is a relationship between the two (Battisti et al., 2022). Although there is much research showing that companies use CVC investments as a window to novel technologies and as an extension of their internal innovation efforts, there is no research on the role of sustainability in these investments. Battisti et al. (2022) show that CVC investment affects CSR performance. However, we do not know whether or not firms distinctively use CVC investments for this exact purpose. More research is needed on the role sustainability is playing in the screening and selection process of venture firms. Looking back to the study done by Ioannou and Serafeim (2019), we know that sustainability-based innovations can serve as a resource for competitive advantage. However, research has not looked at these two research domains in conjunction and to what extent firms use CVC investments to obtain sustainable innovations.

For the O&G industry, one might argue that sustainability fits into both financial and strategic motivation. It can be viewed as financial as it may cut costs in making them more sustainable in a society where it is highly costly to emit carbon. However, it may also be viewed as strategic for oil majors, as it may provide them with new technologies that help them innovate towards a future with greener energy. Industries such as telecommunication, manufacturing, and pharmacy have been much used in CVC related studies, and scholars have found that the motivation and performance of the investments vary in different industries (Dushnitsky, 2012; Siegel et al., 1988; Wadhwa & Kotha, 2006). This means that the results of the O&G industry might deviate from what has been found in other industries. Therefore, we believe that the

combination of looking at sustainability as a factor, as well as the O&G industry as a context, may provide valuable insights and results for both the CVC and CSR line of research.

### **3 Methodology**

The following section will explain the research methodology used to address the research question of the thesis. Firstly, we will present the research design that has been applied. Secondly, we explain the selection of cases. Thirdly, the process of collecting and analyzing the data will be presented. Lastly, we go through legal and ethical considerations.

#### ***3.1 Research design***

In line with Eisenhardt (1989), a multiple case study has been selected as our research design to investigate to what extent CVC investors consider sustainability in their investment decisions. Like any other research design, multiple-case studies have distinct advantages and disadvantages. Multiple cases allow for a replication logic where the cases are treated as a series of experiments that either confirm or disconfirm emerging conceptual insights (Eisenhardt & Graebner, 2007). Using a multiple-case approach, we are better positioned to establish the circumstances in which a theory will or will not hold (Yin, 2017). Compared to a single-case study, evidence from multiple cases is considered more compelling and more robust (Davis et al., 2007; Yin, 2017). As we aim to get in-depth insights and genuinely understand the decision-making process, a multiple case study will fit the purpose of this thesis. Typically, case studies combine qualitative and quantitative data collection methods (Eisenhardt, 1989). The research will use evidence from interviews as primary data in combination with quantitative data from archives and databases as secondary data. The data sources used will be described in greater detail in section 3.3.

Research questions with little prior theory and empirical evidence are particularly fitted to be addressed through a theory building approach (Eisenhardt, 1989, 2021). The main objective of the selected research design is theory building, especially with multiple cases and theoretical logic (Eisenhardt, 1989, 2021). Furthermore, the multiple case study is well-fitted to use both qualitative and quantitative data

(Eisenhardt, 1989, 2021). Using multiple cases will also enable us to make comparisons that clarify whether a finding is related only to one case or consistently present in all cases and likely to create a more robust and better theory (Eisenhardt & Graebner, 2007; Yin, 2017). In addition, the thesis will provide propositions based on the findings from the data collection process.

To the best of our knowledge, there is a gap in research regarding how sustainability as a factor is considered when corporate venture capital investors are screening and making their investment decisions. Further, sustainability as a driver for CVC investments is quite novel. Thus, this paper aims to investigate to what extent CVCs from the O&G industry consider sustainability in their investment decisions. The research setting in this thesis is CVC investments in the O&G industry. Several factors make this research setting attractive. Firstly, the energy transition is exposing oil majors to critique for their emissions, pushing them to search for novel technologies. Secondly, many of the world's largest O&G companies have a dedicated venture arm. We have used market cap as the measure to rank the largest O&G companies. Table 1 shows the 10 largest companies ranked by market cap and whether they have a CVC unit. This selection will be further elaborated on in section 3.3. Lastly, as explained in section 2, we argue that this research setting is valuable to provide a steppingstone for closing the gap between literature on CSR and CVC.

The unit of analysis for this research is the CVC unit. Typically, we look at a CVC unit as a separate entity with a dedicated amount of money in a fund they invest from (Drover et al., 2017; Dushnitsky, 2012; Hill et al., 2009). The CVC unit operates on behalf of the corporation. The structures of the CVC units in our sample vary across the companies and will be described in detail in the case presentations in section 4.

Rank	Company	Country	Market cap (USDm)	Enterprise value (USDm)	mmboed
1	Saudi Aramco	Saudi Arabia	2 387 351	2 498 102	12,34
2	ExxonMobil	USA	411 102	422 431	3,71
3	Chevron	USA	350 287	329 313	3,10
4	Shell	UK	223 731	254 899	3,24
5	TotalEnergies	France	153 593	155 285	2,82
6	ConocoPhillips	USA	148 229	153 130	1,57
7	PetroChina	China	144 475	196 593	1,63
8	Equinor	Norway	121 520	108 438	2,08
9	Gazprom	Russia	108 935	147 588	-
10	BP	UK	105 064	138 115	2,18

Table 1. Top 10 oil and gas companies based on market cap. (Data retrieved from Refinitiv Eikon)

### 3.2 Research sampling

#### 3.2.1 Theoretical sampling - Selection of cases

As we aim to build theory rather than test it, the right approach was to carefully select our cases, following a theoretical sampling approach (Eisenhardt, 1989). Theoretical sampling means to sample cases by choosing the ones that fit for displaying the relationship between constructs, chosen particularly to build the theory based on similarities and differences in the cases (Eisenhardt & Graebner, 2007). There are several ways to choose the cases within theoretical sampling. For this research, we have chosen to sample cases based on *common antecedents* (Eisenhardt, 1989, 2021). Our cases are sampled based on the fact that they are similar, and thus comparable. By sampling similar cases, the differences in outcome can more easily be observed, as there are little to no variations in antecedents (Eisenhardt, 2021). Thus, we have outlined some criteria to narrow down the search for our sampling.

Firstly, the sampling is narrowed down by focusing on one single industry: the O&G industry. This industry has received a lot of attention in the conversation on climate change, as energy transition (the transition from fossil fuels to renewables) plays a key role in solving this problem. Moreover, actors operating in the O&G industry are

among those experiencing the most pressure to change and develop more sustainable ways of conducting business (IEA, 2020a). Arguably, they are pushed to look for new technologies for energy production in order to stay alive long-term. We therefore find the O&G industry to be a fitting context for our research question.

In the quest to choose which companies to select, we started by searching for the largest O&G companies in the world. While there has been little change in what companies are counted among the largest within their industry, their ranking varies depending on the metric used. Therefore, to determine *largest*, we collected data and sorted the companies in terms of market cap (see Table 1). In addition, we have included the company enterprise value and their production in millions barrel of oil equivalents per day (mmbod) to display various metrics. The data was retrieved from Refinitiv Eikon, spring 2022, and constitute the data in tables 1, 2, and 3. Common terminology for these companies is “oil majors” or international oil companies (IOCs), which are oil producing companies listed on European or American stock exchanges (IEA, 2020a).

### 3.2.2 *Sampling Criteria*

In line with our theoretical sampling approach, we have outlined three criteria to achieve the common antecedents we wanted the cases to share. These are presented and described below (see table 2).

1. They are among the top 10 oil companies in the world (table 1).
2. They have a dedicated CVC unit, solely controlled by the mother corporation.
3. They have operated on the Norwegian continental shelf.

Our first criterion for sampling was that we wanted to choose a company from the top 10 oil companies in the world. We did not include more than the 10 largest companies based on market cap, mainly due to time constraints. Since our project had to be conducted during a limited period of time, we had to limit the number of cases. As mentioned earlier, we used Refinitiv Eikon to sort the companies by market cap (see table 2).

The second criterion was that the company must have a dedicated CVC unit, controlled only by the mother organization. Most of the largest oil majors conduct venture investments of some kind. However, several of them conduct their investments through joint ventures with other companies or have their venture arm merged with other investment activities in the organization. Therefore, to extract the correct portfolio and facilitate comparison across companies, we have only selected companies that have a dedicated CVC unit, controlled only by the mother organization. The second criteria excluded ExxonMobil, ConocoPhillips, PetroChina, and Gazprom, leaving us with a preliminary sample of 6 companies.

The third criterion is that the company must have operated on the Norwegian continental shelf (NCS). Innovation has been a crucial determinant and driver for the development and value creation on the NCS (Fjose et al., 2014). Innovation on the NCS has enabled companies to look, expand, and operate safer and more efficiently in demanding conditions. Further, the NCS is a world leading supply industry, with a production recovery rate of 47 %, compared to the world standard of 30-35 % (Aadnøy & Looyeh, 2019; Norwegian Petroleum, 2022). Therefore, it is reasonable to believe that companies that have operated on the NCS are more likely to prioritize sustainability. Further, we chose the third criterion due to the project's limited time frame and the possible challenge of getting in contact with high level investors in oil and gas companies' CVC units. In addition, we saw it to be relatively easier to get in contact with companies that either have operated on the NCS, or still operate on it, as we saw it possible that companies who had operated in the same fields may have a closer connection and, therefore also aid us in the quest towards getting in contact with the interviewees. Applying the third criterion to the list excluded Saudi Aramco from the sample.



Rank	Company	Top 10 (criterion 1)	CVC unit (criterion 2)	Operated on NCS (criterion 3)
1	Saudi Aramco	✓	✓	×
2	ExxonMobil	✓	×	✓
3	Chevron	✓	✓	✓
4	Shell	✓	✓	✓
5	TotalEnergies	✓	✓	✓
6	ConocoPhillips	✓	×	✓
7	PetroChina	✓	×	×
8	Equinor	✓	✓	✓
9	Gazprom	✓	×	×
10	BP	✓	✓	✓

Table 2. Top 10 oil and gas companies evaluated with sampling criteria

Based on the mentioned criteria, we ended up with a sample of five oil and gas companies and their respective CVC units presented in table 3. These companies will be presented in greater detail in section 4.

Company	Country	Market Cap (USDm)	EV (USDm)	mmboed	CVC unit	Operated on NCS
Chevron	USA	350 287	329 313	3,10	✓	✓
Shell	UK	223 731	254 899	3,24	✓	✓
TotalEnergies	France	153 593	155 285	2,82	✓	✓
Equinor	Norway	121 520	108 438	2,08	✓	✓
BP	UK	105 064	138 115	2,18	✓	✓

Table 3. Sample companies based on sampling criteria

### 3.3 Data collection

The data collection for this research is based on a mixed methods approach. Firstly, as primary data, we have conducted interviews with CVC investors. Then, serving as secondary data, we have collected the investment portfolio for each sample company through CB Insights and various information on the company and its strategy. The secondary data served as a foundation for the structure of the primary data. The two levels of data collection will be used in conjunction to formulate our findings.

### 3.3.1 Primary data

Similar to much research using the Eisenhardt method, we have used interviews as our primary data source (Eisenhardt, 1989). We have interviewed seven employees across four of the five CVC units in our sample. These employees speak on behalf of the CVC unit. Initially, we contacted all five companies, however, the primary data ended up being collected from only four out of these five, due to one company withdrawing its contribution in the last minute. To get the most insightful data, we wished to interview high level employees with much experience with CVC investments. The CVC units of the four firms all have different organizational structures and titles in terms of employees. Therefore, we have grouped the CVC investors we have interviewed under the term *Senior Investor* or *Investor* (See appendix 1). The different Senior Investors we have interviewed all have in their mandate to take part in the screening process and investment decision making of the ventures. In addition, they all have experience from having a position as a board member in a venture and more than 10 years of experience within the industry. We have also interviewed lower-level CVC investors; however, these are only follow-up interviews in the companies we have already interviewed a Senior Investor.

To connect with our interviewees, we started with a referral to one of the companies from our network and then received further referrals from other interviewees. One company we also connected with through LinkedIn. Throughout our research process, we understood the tight network that exists within the CVC environment. The CVCs usually co-invest together in the different investment opportunities, making them tightly connected and familiar with each other. This was highly beneficial when contacting the different CVCs.

To ensure that the research gathered holistic data, the interviews followed a semi structured interview guide, shown in appendix 3 (Bell et al., 2019). This means we had prepared a structure for the interview beforehand but were flexible to deviate away from that structure if needed. The interview guide was formulated based on both findings from prior literature on the topic and our secondary data collection, which will be elaborated on in the section below to best find the data to answer our

research question. The interview guide was divided into three main parts: 1) employees and organizational structure, 2) the screening process, and 3) sustainability and strategy. The first section was contextual to get an overview of the structure and mandates within the CVC unit. The second part was the most extensive, where we wanted to get into the details of the screening process. Lastly, the third part was a more open section, with several company specific questions built on our findings from our secondary data. As mentioned, the interview guide was semi structured, and we often deviated away from it if the interviewee had already answered a question or if we wanted to dig deeper with other follow-up questions. For the companies where we interviewed more than one person, we made minor adjustments to the interview guide by reviewing what the first person had said and focusing on areas where we felt we were missing data or insight.

The interviews were all conducted digitally on video. This was convenient as most of the interviewees were situated in other countries. We started the interviews by presenting ourselves and the project to the interviewees, in addition to answering any questions they had before starting. The interviews lasted for about 45-60 minutes, with some lasting shorter and others longer. With consent from the interviewee, the interviews were recorded and later transcribed to analyze the data. We took follow-up questions by email, as this was fitting for the interviewees.

One of the challenges with having interviews as the primary data source is the danger of interview biases (Bell et al., 2019; Yin, 2017). The interview biases can be caused both by the interviewer and the interviewee. In order to mitigate this, we have tried to keep an open mind when going into the research by focusing on not having any preconceived ideas of what the interviewees would respond. We have also tried to form the questions as open as possible, to not lead the way of the answers during the interview. Furthermore, data collection from interviews may suffer from response bias, from the interviewee. For example, sustainability and climate change are sensitive topics, in which oil and gas companies are especially exposed to critique from climate activists. Therefore, the interviewees may feel inclined to answer in a way that frames the company as more sustainable. However, to mitigate this, we have

cross-checked the tendencies that the interviewees describe with the actual investment trends then conducted, as well as company actions and announcements.

### 3.3.2 *Secondary data*

For this research, the main source of secondary data is CB Insights. CB Insights is used by large corporations and is a highly reputable provider of data in the field of venture capital and private equity research (CB Insights, n.d.; Lougen, 2017). It specializes in global venture capital, private equity, and angel investments (CB Insights, n.d.). Further, it monitors the startups from seed to exit and thus covers the whole life cycle of a startup. In addition, it contains historical data and up-to-date information like company information, industry information, investors, financing, and exits (Lougen, 2017). The database has three search options: Deal search, company search, and investor search. The latter has been used in this thesis to collect the investment history of the research sample. When choosing the investor search option, we could find what ventures the different companies in our research sample recently and historically have funded. The data pulled out of the database contained information about investor types, country, sector, industry, sub-industry, co-investor, deal date, funding amount, and description of the startup. Lastly, the database allowed us to easily generate lists of ventures invested in with the information mentioned above.

The historical lists of which ventures all the CVCs have invested in with information about date, company, funding amount, funding round, whether it was a new investment or follow on, co-investors, country, sector, industry, sub-industry, and description of the venture were then extracted to an excel file. In addition, other sources of data have also been used, including public information from the respective CVC units' websites in addition to the CVCs corporate websites. From these websites, data was gathered on both the CVCs strategy and the corporate strategy, and their sustainability strategy. Further, due to the exploratory nature of our research project, reports such as *The energy transition outlook* and industry reports from CB Insights have been used to gather an overview of the energy transition and the CVC industry trends (CB Insights, 2022a, 2022b; DNV AS, 2021) In addition, LinkedIn has been used to gather information about the interviewees. Lastly, as

mentioned above, Refinitiv Eikon has been used to gather data on the companies to select our cases.

### ***3.4 Data coding and analysis***

After transcribing the seven interviews, we started the process of coding the data. As presented in Bell et al. (2019), we followed a thematic analysis process, where the aim was to find the overarching, grouped themes that would constitute our research findings. Initially, we worked together on forming a tentative list of 18 codes to use (Bell et al., 2019; Yin, 2017). However, we were flexible in adding new codes as we saw fit during the coding process. The list was formed based on the interview guide and our interpretation after having all the interviews. Also, we kept in mind that the codes should be formed such that they gather data relevant to answering our research question. The coding was done individually by both of us to ensure a holistic data analysis process, not biased by collective thinking. We then worked together and compared the two lists to form a mutual understanding of our data. The final list of codes comprised 20 different codes, shown in appendix 2.

These codes were compared, contrasted, and analyzed across the different CVCs and interviewees. As our sample was chosen based on the similarities in the firms, we were looking for patterns of similar behavior, as well as potential differences. Further, we formed the first draft of the five propositions in order to group the data. We then used the codes to find relevant data to support our propositions. Data was more easily found for some of the propositions, as it was a more concrete question we had asked during the interview. For others, it was more challenging, as companies had answered the questions differently. Forming propositions and analyzing data was an iterative process, and the propositions were fine-tuned based on the analysis.

We conducted much of the data analysis for our secondary data prior to making the interview guide. The motive for doing this was to get an overview of the investment patterns of the CVCs and to enable us to form the interview guide. First, the portfolios were sorted into sectors, second into industry within the sector, and third into sub-industry within the industry (Appendix 5). We sorted them on these three levels as the sub-industry was highly relevant in some cases (e.g., one venture could

have the sector “Energy & Utilities”, industry “Renewables”, and sub-industry “Hydrogen/Fuel Cell”). Then, an overview of what types of sectors, industries, and sub-industries the different CVCs invest in was made. Further, we have identified the number and share of sustainable ventures each CVC has invested in (Appendix 4). We have defined a sustainable venture as something that helps the corporation lower its emissions or become sustainable, or renewable ways of producing energy. This assessment was done by analyzing the venture technology, industry, and strategy.

### ***3.5 Research Quality***

The main purpose of this study is to determine if CVC units in the O&G industry consider sustainability in their investment decisions and to what extent they consider it. In order to investigate this, a multiple case study supported by quantitative data was chosen as the research approach. For a study to be recognized as valid empirical social research, it must be considered satisfactory within construct validity, internal validity, external validity, and reliability (Bell et al., 2019; Yin, 2017). In turn, the measures that have been taken in this thesis will be presented.

#### ***3.5.1 Validity***

Due to the exploratory nature of this thesis, and in accordance with Bell et al., (2019), internal validity is not as easily commented on. Because qualitative research and quantitative research differ, Guba & Lincoln (1994) have proposed some alternatives to validity for qualitative studies. They propose that parallels can be drawn between credibility and internal validity (Bell et al., 2019). Thus, we believe some remarks should be made to this. To increase the credibility of our findings, in line with (Bell et al., 2019), we have submitted parts of our research findings to the interview objects for respondent validation. In addition, as recommended by Guba and Lincoln, we have used triangulation as a technique to increase the credibility of the research.

Construct validity seeks to identify correct operational measures for the concepts studied (Yin, 2017). We strived to interview two different employees in each venture to construct validity. Multiple sources of evidence, such as quantitative data collected from CB insights, have been used. In addition, the informants have reviewed the draft of the case study report. Conclusively, triangulation of the data was possible by using

multiple data sources, interviewing different persons in most of the CVCs, and allowing the interviewees to review the case study report.

External validity refers to how the findings in a study can be generalized across different settings (Yin, 2017). Some researchers argue that using case studies and small samples creates external validity problems for qualitative studies (Bell et al., 2019). In contrast, Eisenhardt (1989) argues that multiple case studies can generate generalizable results across settings and provide testable hypotheses and theories. Also, the findings have been compared and contrasted to increase external validity in line with Eisenhardt (1989). Many of the findings are case-specific, or at least industry-specific, as we observe several common results across the cases. This indicates that the findings in this thesis will most likely be generalizable within the setting but not for all CVC investors across different settings. Another limitation of the research methodology in this thesis might be the number of interviews. Interviews were conducted with two different employees in three of the four companies in the research sample and with one employee in the remaining company. Even though we did not conduct interviews with two employees in every company, we found the information provided by each actor to be mostly similar. Therefore, we do not think that it will create significant limitations. However, since this thesis is a multiple case study with a relatively small sample, we acknowledge that the thesis's external validity will be weaker than other research designs.

### *3.5.2 Reliability*

Reliability demonstrates that the study's operations can be replicated and repeated, achieving the same results (Yin, 2017). To ensure reliability and minimize errors and bias, the operations in this study have been described as detailed and straightforward as possible. Complete records are kept of all phases of the research process, including problem formulation, case selection, interview transcripts, and data analysis decisions to increase the study's trustworthiness. In appendix 1, we show the investor titles of the research participants to indicate what role the participant has in the CVC unit. In appendix 2, we show the codes for the data coding, and appendix 3 shows the interview guide. In addition, we have provided definitions on various terminology and consistently followed these definitions. In total, the appendices and our

methodology section enable replication of the study. Therefore, peer researchers can act as auditors to evaluate if proper procedures have been followed (Bell et al., 2019).

### ***3.6 Legal and ethical considerations***

According to Bell et al. (2019), there are mainly four different ethical principles that business researchers must act in accordance with. The research conducted for this thesis has been based on and strived to fulfill these ethical principles. First, the research conducted has no intention of harming the participants. Second, a letter of consent has been signed with each participant. Third, confidentiality has been applied to protect privacy. Last, deception has been prevented by being open about the research project and what was researched. Conducting ethical, social research implies ensuring that the data are sound and trustworthy (Singleton & Straits, 2018). In all the parts of our data collection, we have set openness and understanding above personal gain and effort to prevent errors and misrepresentations. The following paragraphs describe and outline how we have focused on ethical and legal concerns when conducting this research.

First and most importantly, this thesis does not aim to harm any of the participants. Therefore, the possibility of harming participants and non-participants has been assessed extensively. An effort has been made in order to minimize the possibility of harm. Consent to participate in the study was requested in addition to the request to record the interviews. All participants have been offered the possibility of being anonymous, and recordings, transcripts, and identities have been treated confidentially. Prior to publishing, all participants have been offered to review the part of their case in this thesis and their quotes. We have chosen to anonymize all interviewees' identities as well as the company connected to the primary data. However, for the companies constituting our secondary data, we have chosen to display the company name, as this is all public information and preserves a level of realism to our study. In qualitative studies, issues of confidentiality and anonymity can create difficulties. Since the CVC units in the research sample are not that large, and the sample size is relatively small, we have fully anonymized the primary data.



Second, our study was completely voluntary, and each participant had to sign a written and informed consent form before to the interviews. For that reason, the Norwegian Centre for Research Data (NSD) were contacted, and their guidelines were used as a basis for the information that we handed to the informants. The form of consent consisted of information regarding the project's purpose, who was responsible for the project, and why they were asked to participate. In addition, information that the interview would be video recorded was conveyed. Further, the participant explained how the personal data was planned, used, and stored and that we would delete the personal data at the end of the research project. Lastly, we informed the participants about their rights. They can at any point of time access the data that is being processed about them, request that the personal data to be deleted, request that incorrect personal data to be corrected/rectified, receive a copy of their personal data, or send a complaint to the Data Protection Officer or the Norwegian Data Protection Authority regarding the processing of their personal data. The consent form (see appendix 6) has been approved by the Norwegian Centre for Research data (NSD).

Third and closely linked to the consent form, we have protected the privacy of the research participants in accordance with the consent form and Norwegian law (Bell et al., 2019). Every participant was given the possibility to stop the recording of the meeting at any time, refuse to answer questions that were asked, or withdraw from the study. In addition, the information that was given in the interviews was kept confidential and anonymous.

Lastly, openness, honesty, and professionalism have been emphasized to prevent deception of the participants. The consent form was as detailed and informative as possible, although it is extremely difficult to present prospective participants with absolutely all the information about the research. To conclude, we have strived to treat all information with sensitivity and make it clear to the participants that all data provided will serve only the purpose of this thesis. There are no conflicts in funding sources, as this research has no funding.

## 4 Presentation of cases

In this section, we will present the cases we have analyzed, i.e., our five sample companies for secondary data. Then, for each of the companies, we will present a brief company overview, their sustainability targets and strategy, and lastly, the structure and strategy of their CVC unit.

Company	Headquarter	CVC unit established	Fund size (USDm)	Total investments
<b>Equinor</b>	Stavanger (Norway)	1991	750	47
<b>Shell</b>	London (UK)	1996	1 400	119
<b>Chevron</b>	San Ramon (USA)	1999	400 (Future) 90 (Core)	116
<b>BP</b>	London (UK)	2006	200 annually	42
<b>TotalEnergies</b>	Courbevoie (France)	2008	400	53

Table 4. Presentation of CVC units

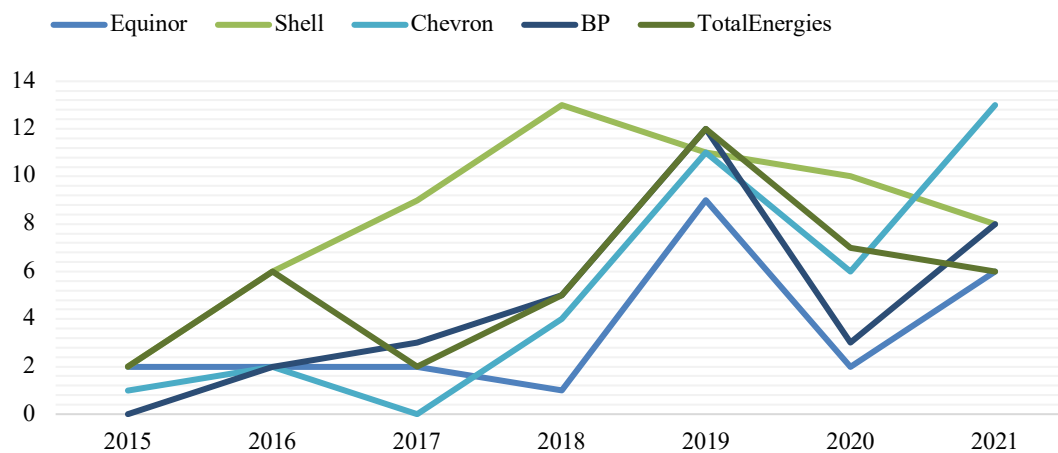


Figure 1. Annual number of new investments

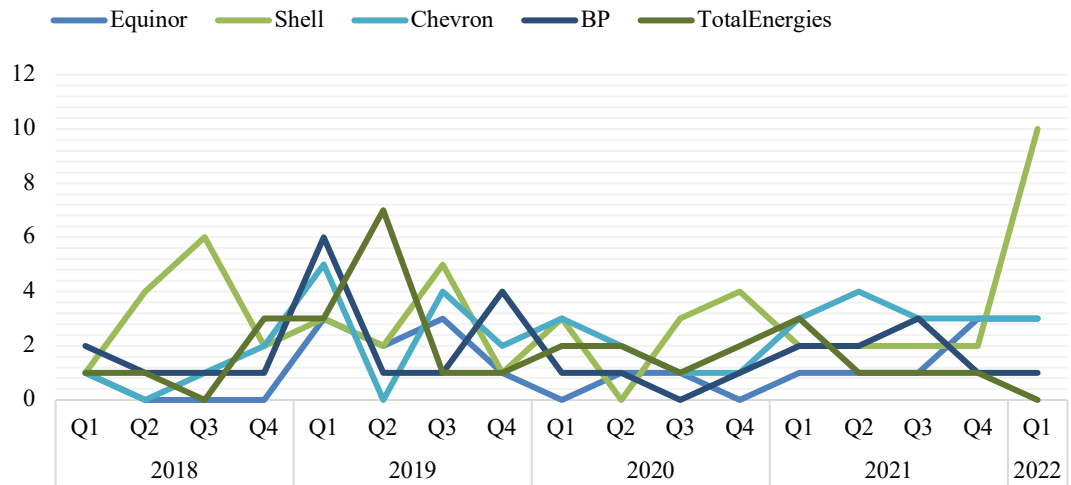


Figure 2. Quarterly number of new investments

#### 4.1 Equinor Ventures

Established in 1972 as the Norwegian State Oil Company, Statoil, Equinor today is the largest oil and gas operator in Norway and one of the largest offshore operators in the world (Equinor, 2022b). Headquartered in Stavanger (Norway), and present in around 30 countries worldwide, Equinor currently produces around 2 million barrels of oil equivalents per day. The Equinor share is listed on the Oslo Stock Exchange and the New York Stock Exchange. The Norwegian state is the largest shareholder, with 67% of the shares (Equinor, 2022a).

Equinor’s energy transition plan states a commitment to long-term value creation supporting the Paris Agreement. By 2030 they are halving their operated greenhouse gas emissions and reducing their net carbon intensity, including emissions from the use of sold products, by 20% by 2030, and 40% by 2035 (Equinor, 2022a). Further, Equinor aims to be a net zero company by 2050. To achieve these goals, Equinor sets out to optimize its oil and gas portfolio, producing carbon-efficient oil and gas, accelerating value-driven expansion in renewables, and building out new low carbon technologies and value chains.

Equinor Ventures is the CVC unit of Equinor. Their venture capital activity began in 1991 as Statoil Technology Invest (Wiersholm, 2018). Today, the fund looks to invest USD 750 million in ambitious early-phase and growth companies that can

shape the future of energy between 2021-2025 (Equinor, n.d.-a). The venture arm was previously structured around two different units, Equinor Technology Ventures, and Equinor Energy Ventures. Equinor Technology Ventures primarily made investments in the O&G industry, while Equinor Energy Ventures focused on renewable energy and low carbon solutions. In 2020, the two units merged and became Equinor Ventures (Harnes, 2020).

The CVC focuses on finding ventures with a strong strategic fit and assessing how the ventures can contribute to Equinor's operation now or in the future. The investment must fit into one of the three different investment pillars they have (Equinor, n.d.-a). An investment must either enhance (i.e., improve their operations), expand (i.e., test future growth leg), or explore (i.e., Learn from high-impact solutions) (Equinor, n.d.-b). According to CB Insights, historically, the different CVC units of Statoil/Equinor have invested in 47 different ventures. In addition, Equinor Ventures is strongly engaged in startup accelerators and is also investing in several funds. Their investment geography is primarily in Europe and North America, but they are also open to opportunities globally (Equinor, n.d.-a)

#### ***4.2 Shell Ventures***

Shell plc, formerly known as Royal Dutch Shell plc., was established in 1907 (Shell, n.d.-b). The company is currently headquartered in London. With operation in more than 70 countries, 3,2 million barrels of oil equivalents produced per day, and 64,2 million tons of liquefied natural gas (LNG) sold in 2021, Shell plc is one of the largest O&G companies in the world (Shell, 2022a). The company is currently traded on London Stock Exchange, Euronext Amsterdam, and New York Stock Exchange (Shell, n.d.-d).

In 2021, Shell reshaped and restructured its organization to place its energy transition strategy first in everything they do (Shell, n.d.-e). Essentially, they have incorporated sustainability within their business strategy. Shell targets to become a net zero energy business by 2050, and its strategy to accelerate the transition towards net zero emissions is called "Powering Progress" (Shell, 2022a). To become net zero, they

have set a target to reduce the net carbon footprint by 20% by 2030, 45% by 2035, and 100% in 2050 compared to 2016 (Shell, 2022b).

Shell plc. was one of the first companies in the O&G industry to create a corporate venture capital fund and established Shell Ventures in 1996 (Shell, n.d.-a).

Historically, according to CB Insights, Shell Ventures has invested in 119 different ventures. In addition, they also make investments in incubators and funds to expand their scanning capabilities and to get introduced to potential investments (Shell, n.d.-c). Their CVC unit sets to accelerate the energy and mobility transformation by investing in companies that lower emissions, electrify the energy system, and provide innovative consumer solutions. Shell Ventures make minority investments in startups from their early stage to scale and growth phases. Primary investment areas for the venture unit are a mix of power, mobility, emission management, resources, and digital (Shell, n.d.-a). In late 2021, Shell set up a dedicated \$1,4 billion fund for Shell Ventures to accelerate the energy transition. The fund will work in line with Shell's efforts to become a net zero company by 2050 and will focus on renewable energy, storage and utilization, mobility, transportation and logistics, circular economy, and nature-based solutions (van de Wouw, 2021)

### ***4.3 Chevron Technology Ventures***

One of the earliest predecessors of Chevron can be traced back to 1879, but it was not until 1977 that the company took its current name (Chevron, n.d.-a). With 3,10 million barrels of net oil-equivalent production each day, the corporation is one of the largest in the world (Chevron, 2022a). Initially being just an oil company, they are today involved in oil, natural gas, solar, renewable, geothermal, and more (Chevron, n.d.-a). The company is headquartered in San Ramon (California) and is publicly traded on the New York Stock Exchange (Chevron, 2022a).

As the world's energy demand is greater now than ever before, Chevron seeks to create a more prosperous world by producing affordable, reliable, and ever-cleaner energy (Chevron, 2022d). To achieve these goals, they set to leverage their capabilities, assets, and customers to deliver lower carbon energy to the world. They

aspire to lead in lower carbon intensity oil, products, and natural gas and to advance new products and solutions that reduce the carbon emission of major industries (Chevron, 2022a). By 2028, the company targets to reduce enterprise methane emissions by more than 50%. In addition, in 2021, Chevron committed to achieving net zero for upstream production Scope 1 and 2 GHG Emissions by 2050 (Chevron, 2022d).

In 1999 Chevron created its CVC unit and named it Chevron Technology Ventures (Chevron, n.d.-b). The CVC unit aims to identify and integrate technologies and new business solutions to enhance Chevron's operations and allow Chevron to produce and deliver affordable, reliable, and cleaner energy (Chevron, n.d.-b). According to CB insights, the CVC unit has invested in 116 different ventures. In addition, the CVC unit invests in incubators and accelerators to access technology that Chevron can use. The unit consists of two separate funds which invest in different domains, the “core energy fund” and the “future energy fund”. The core fund sets to invest \$90 million in technologies that have the potential to add efficiencies to Chevron’s core business in the areas of operational enhancement, digitalization, and lower-carbon operations (Chevron, 2022b). The future energy fund has committed to invest \$400 million in companies with low-carbon technologies and focuses on industrial decarbonization, emerging mobility, energy decentralization, and the growing circular carbon economy (Chevron, 2022c).

#### **4.4 BP Ventures**

The discovery of oil in Persia led to the establishment of the Anglo-Persian Oil Company in 1908. However, it was not until 1955 that the company adopted the name BP. BP is one of the largest producers of oil in the world, with a production of approximately 2,2 million barrels of oil equivalents each day (BP, n.d.-b). BP was originally named British Petroleum, however, in 2001 they re-branded the company, changing the name to BP, short for *Beyond* Petroleum. BP's headquarter is located in London, and the company is listed on the London Stock exchange as its primary stock exchange listing in Europe. In addition, the company is listed on New York Stock Exchange (USA) and Frankfurt Stock Exchange (Germany) (BP, n.d.-c).

With the name change in 2001, BP set out to find new and alternative solutions to energy, with lower carbon. However, the company found its initiatives to be quite premature because climate change had not gained enough traction at the time. Almost two decades later, in February 2020, BP unveiled its big ambition to reach net zero by 2050 or sooner and help the world reach net zero (BP, 2020). Additionally, their sustainability strategy, “reimagining energy”, aims to reduce carbon emissions by 50% by 2030 (BP, 2022b). Since 2019, BP has already reduced carbon emissions from its operations by more than a third (BP, 2022a). Furthermore, to achieve their big ambition, BP sets to invest more money in non-oil & gas products, reducing oil and gas production by around 40% from 2019 to 2030, and further develop offshore wind, hydrogen, and solar (BP, 2022b).

BP Ventures is the dedicated CVC arm of BP and plays a key role in helping the company reinvent itself as an integrated energy company ((BP, n.d.-a). With a plan to invest around \$200 million each year, BP sets to build new energy value chains to grow their core business, shape future global energy systems, and support bp’s transition to a lower carbon future (BP, 2019). According to CB Insights, BP Ventures have made 42 investments in different ventures. BP Ventures focuses its investments on five areas core to BP’s strategy for advancing the energy transition: advanced mobility, bio, and low carbon products, carbon management, digital transformation, and power and storage. Through these investment areas, BP ventures play a key role in helping the company reinvent itself as an integrated energy company.

#### ***4.5 TotalEnergies Ventures***

TotalEnergies was created in 1924 to enable France to play a role in the oil and gas adventure (TotalEnergies, n.d.-a). The company has gradually diversified its activities and broadened its presence worldwide with activity in more than 130 countries (TotalEnergies, 2022a). Today, TotalEnergies is a global multi-energy company that produces and markets oil and biofuels, natural gas and green gases, renewables, and electricity (TotalEnergies, n.d.-d). In addition, they have begun a transition towards renewable energies: solar, sustainable biofuels, and electricity, mostly from

renewable sources. It is headquartered in Courbevoie (France) and publicly listed on both Euronext Paris and New York Stock Exchange (TotalEnergies, 2022a).

In May 2020, the company announced its ambition to reach net zero emission by 2050 or earlier from both production to the use of the energy products by the customers (TotalEnergies, n.d.-c). In addition, within 2030, they set to at least reduce net emissions of their operating activities by 40%. In order to become net zero by 2050, TotalEnergies is transforming into a multi-energy company, improving the efficiency of its facilities, reducing methane emissions by 80% from 2020 levels within 2030, developing CCS capacity, and offsetting residual emissions (TotalEnergies, 2022b).

In 2008, TotalEnergies established the CVC unit, Total Energy Ventures (TotalEnergies, 2014). TotalEnergies Ventures takes minority stakes in promising startups that have the potential to contribute to creating a low carbon future. According to CB Insights, the CVC unit has historically invested in 53 ventures. With a dedicated \$400 million fund, TotalEnergies Ventures focus on carbon neutrality (TotalEnergies, 2019). Their current areas of interest include Renewables, Distributed Energy, New Mobility, Energy Access, Energy Storage, Bio-Plastics & Recycling, Artificial Intelligence, and IoT (TotalEnergies, n.d.-b). Their portfolio includes solar, wind, marine energy, energy storage, distributed energy tech, hydrogen, biofuels, and chemicals.

## **5 Findings**

We find that the different companies focus on different solutions to becoming more sustainable. All the sample companies aim to become more sustainable, and their investment are following accordingly. We have outlined four propositions in which provide company specific findings for the various companies. Lastly, we have outlined one proposition that show findings for the development in the industry.



	Proposition	Company 1	Company 2	Company 3	Company 4
		<b>Company specific</b>			
1	<b>Oil major CVCs are moving towards making more sustainable investments</b>	They are still investing in ventures within O&G. Mainly to reduce costs, reduce carbon emissions, and increase energy efficiency. Has become more difficult to invest in hydrocarbons. Experienced a shift towards CCUS investments if doing investments in O&G (Market dynamics)	Shifted towards not making O&G investments and will not invest in anything that increases greenhouse gas emissions or have a negative climate impact. They won't invest in O&G. Did their last investment in O&G in 2019. Looking at decarbonization solutions.	They are no longer investing in upstream technologies around fossil fuels. All investments are done in the space of clean energy and no more for what they call oil and gas to contribute to a low carbon future.	Around 80% of their investments are in cleantech. They are still allowed to do investments in O&G but its extremely difficult to do investments within hydrocarbons. Investments within oil and gas has to have the lens of cleantech.
2	<b>Oil major CVCs consider the sustainability of the venture in the initial phases of the screening process</b>	They use the UN SDGs in the selection process of firms. They look at the value chain of the companies they invest in. They invest in ventures that help them reduce their own GHG emissions.	Sustainability plays a role in the screening process. They only invest in ventures that will have a positive impact on the reduction of emissions.	They are initially looking at the SDGs and the carbon neutrality aspect of the venture. Asking themselves; is it a venture that is green?	They only invest in ventures that have a green angle. The venture must have some impact on carbon reduction or other initiatives like carbon capture, water reduction or circular economy.
3	<b>Oil majors use their CVC unit as a tool to access new technologies that can help them become more sustainable</b>	After the first decision gate they engage the business units for whom the technology might be interesting and listen to what they think. They invest in ventures that can help them reduce their own GHG emissions.	They are a strategic investor, meaning they invest to ultimately help the wider organization.	Once they have a company that is interesting, they will check with internal business areas, to see if there are potential synergies that can be explored.	Before invest in a venture, they need a sponsor within the company that confirms that this venture is something the company can utilize. If they do not have a unit for that exact technology, the strategy department can also be a sponsor, seeing that the technology can be part of the future strategy of the company.

Table 5.1. Proposition 1-3 with evidence from primary data collection

	Proposition	Company 1	Company 2	Company 3	Company 4
	<b>Company specific</b>				
4a	Oil major CVCs are moving away from O&G-focused investments and moving towards sustainable investments due to internal pressure	-	-	Employees are supporters of the company being sustainable. Employees are also stakeholder of the company and they expect the company to take initiatives to become more sustainable.	Recent investments in core oil and gas have been strongly opposed internally in the company, as employees think the money should rather be spent on energy transition.
4b	Oil major CVCs are moving away from O&G-focused investments and moving towards sustainable investments due to external pressure	There is little O&G investments that gets added to the portfolio, and reason for this may be the market dynamics, pushing the oil majors to invest in clean tech, e.g., CCUS	-	After the Paris agreement in 2015, they could see a clear change in mentality of the company. They have been fully focused on being sustainable since 2017, being at the forefront of green transition in O&G. They experienced that newer generations has other expectations, and that it was no longer a pride to work for the company if they did not continue to become more sustainable.	Events and crises have made the world aware of the environmental damages of O&G. E.g., the oil spill created pressure on the company to change and become more environmentally friendly.
	<b>Industry wide</b>				
5	Sustainable ventures have become more attractive to various investors, with a significant increase in number of deals and deal size in the sustainable technologies	Competition for the various deals is becoming tougher. We see that a lot more money and investors in general are going into the energy transition space. We pay a lot more for less percentage now than we did some years ago.	-	Many more investors are coming into the clean tech industry, and valuation is getting higher.	-

Table 5.2. Proposition 4-5 with evidence from primary data collection

### 5.1 *Shift towards sustainable investments*

Renewable energies are, to a larger extent, playing a crucial role in the energy sector. According to IEA, renewable capacity growth is predicted to accelerate and will stand for close to 95% of the increase in global power capacity in the next five years (IEA, 2021a). In addition, pressure from customers, investors, sustainability advocates, policymakers, and competitors lead the oil majors studied to positioning themselves for the energy transition. This will be further discussed in propositions 4a and 4b. Being traditional O&G companies, and given their core operations still is upstream production, it is natural to think that a large portion of our sample CVC's investments would be in technologies that would improve their operations in O&G. Conversely, our findings from the interviews show that most investments done by the different CVC units are within renewables or in ventures that have the potential to become a new future business for the corporation.

Our findings show that the different CVCs have taken different positions when it comes to investing in O&G ventures. Although all CVC units are working towards becoming more sustainable, our findings show that the CVC units can be divided into two different groups, depending on their attitude towards investments in O&G ventures. The first group is *O&G neutral*, which means they are largely focused on sustainable investments but are still conducting some investments to enhance core operations. The second group is *O&G opposed*, which means they have completely moved towards sustainable investments and taken a stand on no longer investing in O&G ventures. This thesis does not aim to assess whether one approach is better than the other, as this is outside our scope, but rather present the two different approaches.

For the *O&G neutral* group, we received similar explanations when we asked directly about the rationale behind still making investments in O&G ventures. A senior investor says that it “[...] has become more difficult to do investments in O&G ventures” and “[...] In practice, few new deals are completed within our O&G portfolio.” Although it has become more difficult to complete O&G investments, they will make selective investments within the industry. Another senior investor in the same CVC unit elaborated on why they do this:

*“By only focusing on CO<sub>2</sub> you might miss some technologies that enable sustainable technologies. For instance, investments in the grid. You need to have a solid grid that operates optimally. It’s difficult to calculate CO<sub>2</sub> reductions each year for investments in the grid. You have to think thoroughly about how you analyze and calculate.”*

Similarly, a senior investor in another oil major told us that “[...] it’s *extremely difficult for us to get an investment done if it only has a hydrocarbon story. Even if it is a really great hydrocarbon story it is just not what we are here for.*” Further elaborating on this, *“We will only look at investments that support one of the 20 aims to drive our company and the world to net zero”*. Two of the oil majors state that if such deals are made, they are made to reduce costs, increase operational efficiency, or reduce emissions. In turn, better operational efficiency and better technology can lead to less emissions. As another senior investor said:

*“80 % of our investment is in cleantech, so you can in a way see that sustainability has a huge role to play in how we think of our investments. We want to make our existing operations more resilient. So that is the 20 % we spend to make our operations either faster or cheaper, because in a way that is making it more efficient. But 80% of our money is really spent on new forms of energy that's more sustainable.”*

The *O&G opposed* group has taken a stand to no longer invest in O&G ventures. As all our interviewees are highly experienced with more than 10 years in the industry, they have witnessed a change over the years. When telling us about the first years in the venture arm, a senior investor told us: *“[...] almost all investments were in the upstream business. A lot of well-related opportunities, exploration, seismic.”* Later they created a renewable energy unit and slowly shifted away from investments in upstream-related ventures. Further elaborating on this the interviewee told us: *“In 2019 we did the last O&G investment. Since then, we have not made an O&G investment.”* Similarly, a senior investor in another oil major told us about their

previous investments in upstream technologies (e.g., seismic) but that “[...] at some point we said no. We will no longer invest in any technology around fossil fuels.”.

Even though the CVCs are structured differently and have different approaches to whether to continue to invest in O&G ventures, our findings from the interviews show that they are all moving, or have already moved, towards investments in sustainable ventures. Two of the CVCs have totally abandoned investments within O&G, while the two others still do a small scale of investments within the field. Similarities across the *O&G neutral* CVCs are that they focus on sustainability through emission reductions, more efficient operations, and new sources of renewable energy.

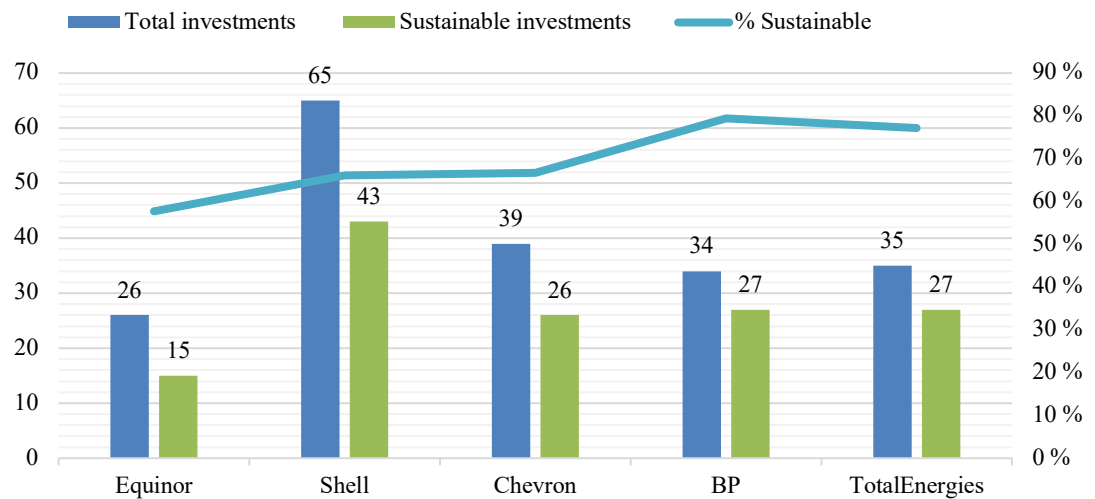


Figure 3. Sustainable investments share of total investments (Data retrieved from CB Insights, spring 2022)

These findings are further backed up by the secondary data we collected from CB insights. After assessing every investment since 2015, the proportion of investments in what we deem sustainable varies from 58-79% of the CVCs investment portfolio in the same period, as seen in figure 3. Leading us to formulate the following proposition:

**Proposition 1:** Oil major CVCs are moving towards making more sustainable investments.

## ***5.2 Sustainability as a decision factor***

Sustainability as a factor in the screening process and investment decision is the key component of our research question. Thus, in the interviews with the CVC units the screening process of the ventures received a lot of attention. We wanted to map the screening process in the different CVCs, in order to understand if, when, and how the sustainability of the venture was considered. All the CVCs have a structured and clear process with distinct milestones in which the ventures need to pass through in order to get funding. Similar for all the companies is that they have a crucial first step where all ventures that have apparent flaws, lack of strategic fit etc. gets filtered out. Moreover, they have due diligence processes where specific business units are included, processes in which negotiation mandates are being granted, deal valuation and then the last step of deciding the best investments for the company. The order of these processes and to what degree they do them vary across the companies, however, they are mostly similar.

When asked about the role of sustainability in the screening process most investors wanted us to provide them with our definition of sustainability. Due to the exploratory nature of our research, we were reluctant to share our understanding of the term, as we wanted to grasp their understanding without being colored by our expectations. Sustainability is a broad term. In the energy sector, sustainability can be defined as energy sources that are renewable and thus, sustainable. However, technologies such as carbon capture, utilization, and storage (CCUS), enables the O&G industry to produce with lower emissions, and may also be viewed as sustainable. The various CVCs in our sample used different terminology for sustainability. Some used “cleantech” as the overarching term, while others used “renewables”, although they were describing similar ventures. It became apparent that for these companies, the definition of a sustainable venture is a venture that can help the corporation in becoming more sustainable. This could either mean ventures that operate in clean energy industries, which broadens the business areas of the corporations, or it could mean ventures that operate in the clean tech space which helps the corporation lower the emissions of their core operations. Thus, we have chosen to define sustainable ventures as ventures that helps the corporation lower its

emissions or become sustainable, or renewable ways of producing energy. As stated by a senior investor from one of the CVCs:

*“In many ways, our main purpose is sustainability. So, in a way, it is not just a component of our investment strategy, it is the whole purpose and foundation of how we are built”*

Furthermore, it became evident that this view on sustainability was a key factor from early in the screening process. For some of the CVC units, ventures that are not viewed as sustainable, in terms of how they will help the corporation in becoming more sustainable, would be filtered out already at the first stage, and not make it to the pool of ventures the investors consider. As a senior investor said:

*“And many of our investments help to either, reduce waste, or reduce emissions, it [sustainability] is pretty high on our agenda, but it's a precursor almost to do investments. But it's not like, just because something may have a positive impact we will invest; it needs to make financial sense too.”*

The investors argued that this was because in order for the venture to be considered they needed to have a strategic fit with the corporation, and ventures that do not have a *sustainable angle* or in some way aid the corporation in becoming more sustainable, would not have a strategic fit with their sustainability strategy. As stated by a senior investor:

*“And so all of our investments now have to be technologies that have some green angle to them, that have some carbon reduction goal to them, or that have some type of business model that drives us in a world of sustainability.”*

Furthermore, some of the CVCs perceived sustainability of the ventures as a life cycle analysis of the ventures and how it operates in terms of ESG. This is something all the CVCs are doing to some extent; however, they all agree that it is something that could be done more systematic. By screening the ventures thought ESG, the

sustainability aspect is also related to governance and social factors. E.g., one of the CVC units conducts a full life cycle analysis of their ventures:

*“So, when we look at the companies, there is one metric that we call life cycle analysis, so if a firm claim - okay I have this carbon negative, or carbon neutral technology, we actually employ not just our company’s technologist, but outside firm to perform a life cycle analysis. We look at the beginning like the electricity they are using to produce the product they claim is low carbon to all the way down to the supply chain when the customer gets it. [...] we have a very objective way to look the life cycle analysis of their carbon intensity.”*

While others do not necessarily conduct a full analysis, it is an important factor for them, in which they are analyzing before investing, as stated by another senior investor:

*“But we have other angles that are important to us, like how the company operates in terms of compliance, breach of human rights, UN conventions etc. These are non-negotiables for us, that also are part of the ESG angle.”*

Although the CVCs do have some variations in their exact definition of what constitutes a sustainable venture, they all have an internal understanding of the term. Furthermore, they all agree that a sustainable venture is a venture that help the corporation in becoming more sustainable. We find evidence from all the CVCs that sustainability is playing a role in the screening process of the ventures, and that it is used as a filter early in the process. Thus, we formulate the following proposition:

***Proposition 2:*** *Oil major CVCs consider the sustainability of the venture in the initial phases of the screening process.*



### 5.3 *Tool to access sustainable technologies*

Similar across all CVCs is that they view themselves as strategic investors. They differ from private VC funds, or IVCs, in that they invest not solely with a financial motivation, but also with a strategic one (Dushnitsky & Lenox, 2006; Ernst et al., 2005; Sykes, 1990). This means that they invest with the purpose of achieving a strategic goal. In section 2 we presented different strategic motivations that corporations have for investing in CVC. One of them is to increase the innovativeness of the corporation (Dushnitsky & Lenox, 2005; Ernst et al., 2005). In addition, prior research on the relation between CVC and sustainability show that CVC investments has an impact on the corporate sustainability (Battisti et al., 2022).

In section 4 we present the investment strategies of the CVCs. In these it is apparent that they all have an exploratory section as part of their strategy. For this exploratory part, they invest in ventures that are outside their core field, that are novel technologies or that may be complementary to their own operations. Stated by a senior investor, one of the initial questions that they ask themselves is: *"What can this give to our company, within our strategic pillars? How can our company utilize this technology?"*. Similarly, another CVC unit investigated has a strategic approach to their investments:

*"We look at the technology, we look at is this a technology that could grow into a future business in [our company], and that is an example of geothermal, hydrogen or is this a technology we can deploy into our company's assets."*

The CVC is used as a scout for new technologies and new opportunities for the cooperation's. In line with Dushnitsky and Lenox (2006), firms use CVC as a window on novel technology, and they find that this approach is in fact the one that creates most value. Although some of the CVCs have a stronger focus on the exploratory role of the CVC, they all agreed that this was something they do. An interesting reflection from a senior investor on why it is not desirable to only invest in existing business areas:

*“So that was kind of our model, we were here to help our hydrocarbon business make more money. You know drive higher margins, drive higher value for the existing business. If we continue down that model and down that path, we're never changing [our company], right? You're making the core operations of [our company] better and it goes back to the classic Kodak moment, right?<sup>1</sup> When Kodak invented digital films, they invented online sharing of digital photos. Yet in every direction they kept pushing all of this back to their core business which was film right? They tried to get people to print film because that's where they made all their money.”*

Moreover, the investors stated that they need an internal sponsor from a business area inside the corporation, that can vouch for the technology. This is to ensure that the venture is relevant for the business, as well as making sure that the people with the correct technical expertise assess the validity of the technology. In other words, they include business units within the organization, to make sure that the ventures can be used as a tool to reach the corporate strategic goals. As stated by a senior investor:

*"it's very important for us to have the sponsor [internal business units] because at the end, we as a CVC, we tend to have a strategic investment and the value that we want to bring to the startups is really how to help them growing [...]"*

Early research found that corporations use CVC as a tool to reach new technologies (Dushnitsky & Lenox, 2006). Our research support what these researchers have found. Further, we extend this notion, as we find that their strategic investments are often motivated by a sustainability component as well. As presented in section 4, all four companies have comprehensive plans for becoming more sustainable and lowering the environmental footprint. In order to support our research question, we therefore wanted to explore whether their strategic investments were motivated by sustainability, with the aim of using it as a tool for becoming more sustainable and

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<sup>1</sup> See (Estrin, 2015) for more information on Kodak's failure to respond to digital photography.

reaching their climate goals. We found support for this in several of the CVCs. For instance, a senior investor stated:

*“[...] so, we do like the normal screening that VC's do. I think it's probably the same. The only element that's different for us is we're also probably looking again at the strategic aspect. Obviously, we're looking at the impact in terms of carbon neutrality, so for us for sure, uhm, we're not going to invest in anything that has to do with fossil fuels. We're really looking for solutions that will help to avoid or mitigate carbon GHG emissions”*

Or exemplified by another senior investor in another CVC unit:

*“So that's changed a little bit because there's places within [our company] that we're now investing that we don't have businesses. So geothermal is a great example. We don't have a geothermal team. So how do we get support for a business like that? We go to our strategy team and say: Look, you are kind of mapping out where you want [our company] to go over the next 20 years, is geothermal one of those places, and their response is, yes. That fits squarely into one of those renewable producing ways of creating zero carbon electrons. And so, they would say: OK, well here's a company, does this fit the profile of what [our company] would do. And yes, it did, so we ended up investing in them.”*

From prior research we know that corporations use CVC as a tool to access new technologies that can help innovate the business. Also, we know that these investments have effect on the corporate sustainability level. However, with evidence from our sample firms, we are extending this view by finding sustainability as a motivation for the strategic investments. Thus, we formulate the following proposition:

***Proposition 3:*** *Oil majors use their CVC unit as a tool to access new technologies that can help them become more sustainable.*

#### ***5.4 Change driven by expectations and resistance***

##### *Internal pressure*

As mentioned in section 2, scholars have looked at the CSR phenomenon through the lenses of stakeholder theory (Freeman & Reed, 1983; Russo & Perrini, 2010).

Stakeholder theory addresses a bundle of actors that have a stake in the business, this being e.g., suppliers, customers or employees (Freeman, 2010). These actors are in some way affected by the actions of the company. In our interviews, we wanted to explore whether there was a change in investments patterns of the CVCs, and if so, find out what drove the change. It became apparent when talking to several CVCs that various stakeholders of the company served as a driving force for company change.

Firstly, the employees show resistance towards investing in fossil fuels. The investors stress that the sustainable framing of the ventures has become increasingly more important now than it was a few years back. Employees are resistant towards investing in ventures that are not sustainable, and thus, the CVC must reconsider. A senior investor shared an example of how they experienced this with an oil and gas investment internally:

*"Another example is in 2021, one of our investments for the core oil and gas, it's a completion, digital completion technology, that investment faced a lot of hurdles internally because people challenged us - should we be spending these 5 mill dollars in technology that helps oil and gas or is that 5 mill dollars better reserved for something else. "*

Furthermore, internal stakeholders are showing resistance even though the investments are not harmful for the environment, only because they do not want the company, they work for to be associated with certain fields. An example in one of the companies with employee resistance toward an investment in a technology turning coal into clean hydrogen:

*"So, for example we are looking at an underground coal gasification technology, that can turn that into clean hydrogen. But just the mentioning of coal as a part of the equation, even though the coal doesn't leave the ground, they contain the carbon underground, people get very nervous about that. Saying do we want to associate with coal, turning coal into clean hydrogen. Where at the end of the day the data will show you, it is a very clean type of hydrogen, it is cheaper than grey and cleaner than green. But people are very nervous because the source is coal. So just the perception of that, perhaps, two- or three-years people wouldn't even have batted an eye, or even be nervous about, but now people are worried about image so that's something I've noticed - just the attitude and shift in how we want our image to show up in the public market. "*

Moreover, internal stakeholders like employees are expecting their workplace to care for the environment. A senior investor we interviewed made a valuable reflection around the role of the internal stakeholders of the company, and how their values might affect the company:

*"At some point in time you do have the clamoring where your key stakeholders are asking for it, but you also have individual stakeholders, including employees. Because I am also a shareholder of the company and I do care what you leave for my children and the generations to come. So, you do have that pressure within the company and outside from individuals who want the companies to be cognizant of the fact that though you know things are changing and we can't afford to leave the climate to be solved by someone else, we have to start to make the move now."*

***Proposition 4a:*** *Oil major CVCs are moving away from O&G-focused investments and moving towards sustainable investments due to internal pressure.*

#### *External pressure*

In addition to internal stakeholders, the corporations are also facing pressure from external stakeholders and factors. With external factors we mean both policy,

governmental actions, crises and event, market dynamics and various external stakeholders. Again, stakeholder theory argues that the company must meet the needs of a bundle of actors, both internal and external, that have a stake in the company. As sustainability is receiving increased attention, the penalty for acting non-sustainable is getting tougher and sustainable solutions are being incentivized (Tulpulé et al., 2022; United Nations, 2021). This creates a pressure on companies operating in fossil fuel industries. For this section we will look at the external factors that the CVCs are facing, pushing them to become more sustainable.

The Conference of Parties (COP) is hosted annually by the United Nations Climate Change Framework Convention (UNFCCC) where all participating countries meet to review the process of climate change and emissions (UNFCCC, n.d.). During these conferences new strategies and goals are set, as well as reviewing prior ones. One of the key conferences was the COP 21 hosted in Paris. During this conference, the 2030 agenda, with the sustainable development goals (SDGs) was developed (United Nations, n.d.). These goals were made so that actors at all levels, country, company and individual, could find ways to develop strategies for sustainable goals. In our interviews, it became evident that these conferences had largely made an impact on the companies. As said by one CVC:

*"We can see this clear shift progressively and it all accelerated you know with the Kyoto agreement [COP 3], and then the real change I think internally with the company was with the COP 21 in Paris. We can see this big change."*

Similarly, policy makers may also be seen as stakeholder in the oil majors, seeing that they are large corporations, controlling important commodities. Policy makers may have a large impact on the corporations, with the use of policy and court rulings. For instance, in 2021 a Dutch court ruling ordered Shell to reduce its emissions by 2030, compared to its 2019 numbers (Roger Harrabin, 2021). The court ruling said that Shell was responsible for its own emissions as well as the emissions from value chain. External actors and events like these are serving as driving forces for change within the company.

Furthermore, external factors such as accidents have played a role in driving the companies towards change. For instance when an oil platform exploded resulting in a spill of millions barrels of oil, the largest oil spill in history (US EPA, 2013). For the company this was a huge tragedy, in which many felt that that they needed to take some action. A senior investor commented on this:

*"We got a new CEO; new CEO is all into focus on oil and gas. We have our oil spill. We just had to kind of get our house back in order, right? And then we get a new CEO and now we're all back to kind of net zero."*

Moreover, oil majors are facing challenges with recruiting, as a new generation of workforce is emerging. In terms of employer branding, the companies now struggle with a new generation that cares about the climate more than their predecessors, and who are demanding more from an employer in terms of social responsibility (Singh & Dangmei, 2016). Thus, in order to attract skilled human capital in the future, the companies must meet the needs of the new generation as well. Evidence shared from another senior investor in another CVC unit support this:

*"[...] we also see it in trying to recruit. And I think within our gas, renewables, and power branch, it's probably one of the youngest teams we have in the company. And people are quite hard, and people are really surprised to hear that people don't want to work with our company. [...] So, this is totally different from a generation before where it was a thing of pride to work for a big corporate like ours, and so we're seeing more and more if we want to recruit talent for the future, it needs to be a company that they're proudly working for. So, I would say that the pressure is there on every side."*

Lastly, the investors mention large shareholders to be a driving force. Big asset management companies are taking stands on not investing in companies that are not ESG friendly (BlackRock, 2020; McKibben, 2018; NBIM, 2019). Prior research on the relationship between company performance and CSR show that CSR has a positive effect on company performance, as it can provide the company with a competitive advantage (Eccles et al., 2014). Being large investors in the oil majors, it

is reasonable to think that this is favorable for the asset management companies. Senior investor in one of the CVCs stated that *“it's only a matter of time for any oil and gas company, you know that you're a staple of asset management companies like that, the pension funds. You can't afford them to get angry with you.”*. When the large, institutionalized shareholders are demanding change, there is not much other choice than changing. The senior investor goes on by stating:

*"I think at the beginning it was really, to be honest, around the vision of the CEO. But right now, I think it is companywide. We all see it. We know what the future is and to be honest, it's not all altruistic. If we're honest. I mean, when was it? Was it two years ago that Larry Fink wrote a letter to all the companies that they had invested in? So, once you start to see big asset managers like BlackRock, start to talk about sustainability, about the climate, you know the time is up."*

***Proposition 4b:*** *Oil major CVCs are moving away from O&G-focused investments and moving towards sustainable investments due to external pressure.*

### ***5.5 Change in industry dynamic***

In addition to the company specific findings that we made in our data; we found an interesting change in industry dynamics as well. During our interviews, it became apparent that the investors were experiencing an increased interest from other actors in the sustainable venture space. The investors experience that the sustainable ventures are receiving more attention, and that the deals are now characterized by higher prices for a smaller share in the company, compared to only a few years back. A senior investor explained the competition for clean energy investment as much fiercer in the last years, saying that *“The competition for the deals is getting harder. It is like the world woke up 5 years ago and realized that something needed to be done”*. This is also supported by another senior investor from a different CVC unit:



*“There are a lot of investors, business angels, financials or so who can give them money just because they are active in this space. And so, as one of the effects that we can see is the valuation getting higher and higher.”*

To support this, we used secondary data such as industry reports on market trends. CVC backed funding reached an all-time high in 2021, with a 142 % increase from the previous year (CB Insights, 2022b). In their annual report, *State of Energy*, CB Insights display several key numbers that show an increasing interest in ventures operating in sustainable industries such as renewable energies, clean hydrogen and CCUS (CB Insights, 2022a). Firstly, the report states that the average deal size in the energy sector has increased by 127 % from 2020 to 2021. In addition, the median deal size for early stage funding rounds in the energy sector has more than doubled the last 6 years, while for late stage deals it has quadrupled (CB Insights, 2022a). This clearly supports the notion made by one of the senior investors, that deals have become more expensive. Furthermore, funding in renewable energy technology experiences a 295 % growth in 2021, reaching an all-time high. CCUS and hydrogen technologies also reach all-time high numbers, both surpassing 1 billion dollars in funding. These points clearly support the data we found in our interviews. Therefore, we propose the following proposition:

***Proposition 5:*** *Sustainable ventures have become more attractive to various investors, with a significant increase in number of deals and deal size in the sustainable technologies.*

## **6 Discussion**

This thesis aims to answer the research question: *To what extent do corporate venture capital investors consider sustainability in their investment decisions?* Through interviews with the CVC unit of four oil majors, we have formed five propositions that constitute the key findings of our data. The first proposition explains what is happening in the investment's trends of the CVCs. Then, we move on to proposition 2 and 3 that are formed to explain *how* these investment patterns are changing,

looking at the factors they consider in the screening process and motivations for investments. Further, proposition 4a and 4b explains *why* this change is happening and the factors that drive it. Lastly, we saw an apparent change in the industry trends and factors, which constitutes the last proposition. Together these five propositions aim to provide a holistic view of the role sustainability play in the oil majors CVC investments.

Prior research show that companies use CVC as a tool to search for novel technologies in order to innovate. Firstly, we find support for this notion in the context of the O&G industry, by providing evidence that oil major CVCs define themselves as strategic investors. Moreover, we extend what prior research has found by looking at the role of sustainability. Oil majors face an immense pressure to become more sustainable, and therefore need to dedicate vast investments to innovation for sustainable solutions. We find that sustainability is a factor that CVCs consider early in the investment decision, showing evidence that sustainability is a motivation for investments (proposition 2).

Since prior research has proven that CVC historically has been used for the purpose of attracting novel solutions, it was interesting to find that the same applies for when companies search for ways to become more sustainable. Our findings show that oil majors use CVC as a tool to attract new *sustainable* solutions (proposition 2 & 3). In close connection to this, we find that the corporations search for ventures that can help the corporation in becoming sustainable. The various companies in our sample have different approaches to becoming sustainable, where some focus on new energy sources, e.g., solar and wind power, while others focus on clean tech, e.g., CCUS. However, common across all is that they have a long-term plan for becoming sustainable, and the venture they invest in must have a *strategic fit* within this plan (proposition 1 and 3).

Further, we find the CVCs and the mother corporations are changing their investment behavior, in particular within the fossil fuel segment, due to both internal and external pressure (proposition 4a & 4b). Stakeholders beyond the shareholders of the company are demanding a shift, making it difficult for the CVCs to continue investing in the

same type of ventures as before. We find evidence for this, by showing that oil major CVCs are moving away from investing in ventures from their core operations (O&G) and that they are moving towards making sustainable ventures (proposition 1). Lastly, we find that the industry dynamic is changing, with an increased interest for sustainable ventures (proposition 5). Valuation is higher, which make deal size bigger, in addition to a higher number of deals. Given our previous propositions, these findings are further support, showing evidence that there is a higher interest for sustainable venture.

These findings make several interesting contributions to prior research. They mainly contribute to two lines of research: CVC literature and CSR literature. In the following sections, we present the contributions to the two lines of research respectively. Furthermore, we present the managerial implications, and lastly walk through the limitations of our study.

### ***6.1 Contributions to CVC literature***

CVC literature has widely focused on the corporations objective for investing in a venture firm (Benson & Ziedonis, 2009; Dushnitsky, 2012; Dushnitsky & Lenox, 2006; Dushnitsky & Shaver, 2009; Ernst et al., 2005). The common understanding is that CVCs, differing from IVCs, invest in ventures with a strategic motivation, often used as a window on new technologies and as an extension of internal R&D efforts (Benson & Ziedonis, 2009; Dushnitsky & Lenox, 2006). With our data collection within the O&G industry, we have extended this view. By adding sustainability to the table, we found that CVCs consider sustainability as a strategic factor for investing in the ventures. Our research question aims to find the role of sustainability in the screening process, and to what extent it is considered. Directly responding to that is our second proposition, stating that sustainability as a factor is considered early in the process, and plays an important role for the selection process. Considering that our study is conducted in the O&G industry this finding is highly interesting. In order to become sustainable, the oil majors need to completely restructure their business and find new ways to produce energy, as their core business is the main factor for not being sustainable. Thus, to invest in sustainable ventures, they must look beyond their

own core operations. Our findings propose that this is what they are doing. Some of the CVC have even taken a stand on not investing in fossil fuels or anything related any longer.

Furthermore, building on the notion that CVCs make strategic investments to attain new technologies, we find that CVCs make sustainable investments to become sustainable (Benson & Ziedonis, 2009). Our sample CVCs all defined sustainable ventures as a venture that can help the corporation in lowering its own emissions or increase its own sustainability. Conversely, one might argue that sustainability has recently become one of the core strategic pillars in these companies. Thus, the act of investing in sustainable ventures is aiming to help the corporation reach their sustainable goals, i.e., acting with strategic motivation. However, regardless of how one might view it, the finding contributes to the CVC literature, by adding sustainability as a factor to what we know on the strategic CVC investments. In addition, we confirm the research that companies use CVCs as a window on new technology. In our research, we find evidence that oil majors use their CVCs to explore ways of becoming more sustainable. They use CVC as a tool to acquire sustainable solutions, either in the form of new business areas such as renewable energies, or in the way of technology that can help them reduce their own emissions.

Moreover, CVC investments and CVC literature has historically moved highly cyclical (Drover et al., 2017; Röhm, 2018). In 2012, Dushnitsky stated that we were in the middle of the fourth CVC *wave*. We can clearly see from the findings supporting proposition 5 that investments have yet again reach a new top, indicating that we now may be witnessing a fifth wave of investments. Lastly, our findings contribute to the CVC line of research by deploying it in a O&G setting. As previously mentioned, we argue that this is a particularly interesting setting for CVC research as the O&G industry currently are in the need for increased innovation and new technologies. Prior research finds that companies that are innovating below their aspiration level will seek to increase their CVC activities (Gaba & Bhattacharya, 2012). This is in line with what we find in our proposition 5, that investments are increasing in the last years, in accordance with a pressure to innovate.

## **6.2 Contribution to CSR literature**

In the line of research on CSR, scholars have found that obtaining a sustainable solution or technology that is novel, can provide the company with competitive advantage and increase company performance (Battisti et al., 2022; Ioannou & Serafeim, 2019; McWilliams et al., 2006; McWilliams & Siegel, 2001). We have contributed to this line of thought by providing evidence on how the oil majors are aiming to do this. Our findings show that oil majors use their CVC unit as a tool to access new sustainable solutions. This is in line with the research on *strategic* CSR, proposing that corporations invest in CSR, with a strategic motivation (Baron, 2001; McWilliams & Siegel, 2011). Evident from our data collection, the CVCs invest sustainably, when it is strategically fitting for the corporation. Thus, we contribute to research on strategic CSR, by providing strong evidence that corporations use CVC investments to achieve this goal.

Furthermore, stakeholder theory is commonly used as a lens by CSR scholar, in order to explain why companies are acting in CSR manner (Freeman, 2010; Freeman & Reed, 1983; A. Russo & Perrini, 2010). As mentioned above, stakeholder theory sees the company through the eyes of actors having an interest in the actions of the company. Though stakeholder theory, the company should act such that they meet the needs and wishes of the anyone having a stake in the company, that being employees, suppliers, or customers. Acting in a CSR manner is therefore a mode to meet the needs of these stakeholders. In our findings, we present evidence that oil majors are feeling pressure by both internal and external stakeholders, to change their operations towards more sustainable solutions. Employees and future employees are expecting more from the companies they work for, and in order to continue being an attractive company, the oil majors need to change behavior.

## **6.3 Managerial implications**

This thesis helps to understand how sustainability is a problem that companies need to address. Our research aims to portray what the CVCs of oil majors are doing and systematize data that has not yet been systemized. Thus, our thesis creates some implications for managerial use.

Managers, especially those in the O&G industry, face challenges when it comes to sustainability. With higher expectations from governments, regulatory bodies, and internal and external stakeholders (propositions 4a & 4b), managers are pressed to consider their business processes' environmental, social, and ethical consequences. This thesis shows that CVC units in the O&G industry is used by oil majors to access novel and sustainable technology (proposition 3). Therefore, the thesis also has implications outside of our research setting. Namely that CVC can be used as a tool for managers and corporations to face challenges and access sustainable technology.

Second, our sample consists of five companies that are sampled based on common antecedents, i.e., we have a sample of homogeneous companies. Our findings implicate that the oil majors are moving in one direction, towards sustainable solutions (proposition 1 and 2). Thus, for companies in the same industry, this is an important takeaway, showing that the industry will change over time, and for anyone who is not ready for that change, it might get difficult. Further, our findings show that CVCs invest in ventures with the aim of obtaining sustainable solutions, that in turn can make them more sustainable (proposition 3). As an important implication of this, companies must be able to *actually implement* these technologies and solutions into the corporations, in order for them to prove successful.

Furthermore, sustainability is becoming increasingly more important for the individual person, and companies must remember the importance of meeting the needs of both current and future employees (proposition 4a and 4b). Our data shows that some of the change is happening due to pressure from various stakeholders. However, companies must remember to stay on top of these expectations, as well put by one of the senior investors:

*“But I think what is important is you make the move before you are pushed. Then you're able to set the terms. You're able to set the parameters of how you want that change to happen, rather than being pushed to do so, in which case you lose control, and then you're just reactive and it's not good for you. It's not good for your shareholders. It's not good for your employees.”*

Lastly, industry trends, supported by our data collection, show that a rapid increase in investments and deal size for sustainable investments (proposition 5). Conversely, the O&G industry is a capital intensive industry, and reports show that currently oil majors only invest 1 % of their capital expenditure in technologies outside their core business, while IEA estimate that USD 4 trillion need to be invested before 2030 for current goals to be fulfilled (IEA, 2020a). Thus, more dedication needs to be shown in order for the transition to truly happen. A supportive comment from a senior investor in one of the CVCs:

*“Although a fund with a few hundred million USD is a lot in the venture world, it is nothing on a high level. Not in renewables, nor oil and gas. So, you can use it as a tool, but the big money needs to be spent on the technologies invented by the ventures.”*

#### **6.4 Limitations**

Although our research has some contributions to research, it has some limitations that should be highlighted. Firstly, our five sample companies all operate in the O&G industry, which limits the generalizability of our results. We have chosen to conduct our research based on the research approach presented in Eisenhardt (1989), as it allows for an exploratory approach to the problem. By using theoretical sampling, the aim is not to create universal generalizability. Therefore, our findings can strictly be explanatory for the context of CVC in O&G industry. However, it should be noted that our findings are broadly consistent with previous literature on CVC investment in many ways.

Secondly, our data collection is solely based on the corporate actor of the CVC relationship. A CVC investment is a relationship between different parties, a venture firm, but also other co-investors. In most funding rounds there are several co-investors going together to invest in the startup. These other investors can be both other CVCs and IVC. Our data collection show that the IVCs tends to lead the investments. Our research does not explore how these parties evaluate or consider sustainability, and if they might be the ones to lead more sustainable investments. In

addition, this study does not explore the venture aspect. Do the corporations converge against sustainable investments, or is the share of sustainable ventures among newly founded firms increasing? This is something we do not explore in this study, however, we also find it is not crucial for the result of our thesis, as our aim is to explore the actions and motivations of the corporate firm.

Lastly, we do not explore any differences in the companies based on where they are primarily located and operating. The focus on sustainability is very different around the world, which may affect the pressure put on the corporation. In turn, this may affect how they prioritize sustainability in the company. In our research we do not consider the geographical differences in the companies studied, thus we suggest that future research should explore these geographical differences.

## 7 Conclusion

From prior research we know that companies use CVC to access novel technology in order to increase the innovativeness of the corporation. This thesis extends this notion by adding sustainability to the table and learning that companies, similarly, use CVC to increase their sustainability. Through data collection from the CVC unit of five oil majors, this thesis explores the role of sustainability in the screening process and investment decision in a CVC unit. Our findings aim to provide a holistic understanding of the role sustainability plays in the investment decision of oil major CVCs. Firstly, by presenting *what* is happening in the CVCs' investment trends, i.e., a shift towards investing sustainably. Further, our findings offer an understanding of *how* these investment patterns are changing, uncovering that sustainability does play a central role in the investment decision. Lastly, we explain *why* these changes are happening, displaying various internal and external factors that drive the oil majors to change.

Our findings make several contributions to existing literature. Firstly, CVC literature state that corporations use CVC as a tool to access new technology and with a strategic objective. We build on this by showing that CVCs invest in sustainable ventures, with the aim of increasing the sustainability of the corporation. Thus, the



corporations use the CVC as a tool to access sustainable solutions. To our knowledge, prior research has not combined CVC and sustainability in this context, and our research therefore provides a closing of that gap. In addition, deploying CVC in the context of the O&G industry is quite novel to the CVC line of research, in which our thesis contributes. Furthermore, this thesis contributes to the CSR line of research. Scholars have found that through the lenses of stakeholder theory, CSR is crucial for companies to meet the need of a bundle of actors, i.e., the stakeholders of the company. Our research finds that oil majors are experiencing pressure from both internal and external stakeholders, pushing them to change their investment patterns.

### ***7.1 Future research***

We suggest that future research should look further into how CVC investments work in conjunction with the internal R&D efforts of the corporation to improve sustainability. For example, Benson and Ziedonis (2009) found that the best results were achieved when the CVC investments increased relative to the internal R&D spending. Therefore, further examining this relationship within this context would be interesting.

Secondly, we have gathered some interesting findings outside of the scope of the thesis and thus, not discussed. When collecting secondary data, we noticed that the CVC units in our sample, to our surprise, co-invested on many deals. This is highly interesting seeing that their mother organizations operate as competitors in the same industry, i.e., the O&G industry. Thus, we were curious to hear the interviewees' thoughts on their fellow CVC investors. We found that the different CVC units in the venture capital ecosystem see each other as collaborators more than competitors. Several explanations for these relationships were mentioned. Firstly, venture capital is about taking bets on new ventures, and a single CVC unit cannot take that risk alone. This means that a CVC unit depends on bringing together trusted co-investors to make joint bets in order to reduce risk and lift the venture together. The second explanation is that investments are not about achieving exclusivity but being able to deploy the technology to operations as soon as possible. If the CVCs sit in a board meeting and think of each other as competitors, they won't be able to support the startup effectively. As a senior investor told us:

*“We have to collaborate now; we can compete later. Because if we do not collaborate now, and share the risk, and help that technology to even become a real company, there is no competition later on, we cannot even compete.”*

Conclusively, we recommend future research to further explore the drivers for these relationships.

Furthermore, we have provided five propositions that constitute the findings of this thesis. These propositions were found by using an exploratory form of data collection. We recommend future research to test our propositions further. This can be done potentially on a larger scale or in other contexts to provide generalizable results. The sample size can easily be adjusted by expanding the number of companies included in the first criterion. Further, it is possible to include joint corporate venture capital funds such as CNPC Kunlun Capital (jointly held by China National Petroleum Corporation, PetroChina Company Limited, and CNPC Capital Company Limited), Energy Technology Ventures (Joint venture between GE, NRG Energy and ConocoPhillips), and other joint venture capital funds where O&G companies have a stake.

Conclusively, we propose that research should be conducted on whether country differences play a role in the CVCs' effort to invest in sustainable ventures. Sustainability may be interpreted differently according to the corporate's nationality and headquarters location. For instance, Europe is the geographical area with most initiatives within the sustainable and CSR space, and putting the most pressure on companies (European Commission, n.d.-b, n.d.-a; Greenpeace European Unit, 2022). Thus, it would be interesting to further investigate this by sampling companies with a greater spread of headquarter locations or company nationality. By doing so, it might be possible to uncover whether country differences influence the consideration of sustainability in the investment decision. Thus, more studies are needed to investigate potential country differences in CVCs regarding sustainability.

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## Appendix

### *Appendix 1 – Investor Titles*

<b>Category</b>	<b>Interviewee</b>	<b>Title</b>	<b>Experience</b>
Senior investor	Interviewee 1	Senior Investor	15 years
	Interviewee 2	Senior Investor	11 years
	Interviewee 3	Investment Director	22 years
	Interviewee 4	Principal	15 years
	Interviewee 5	Managing Director	16 years
	Interviewee 6	Principal	15 years
Investor	Interviewee 7	Associate	14 years

### *Appendix 2 – Table of codes*

<b>Code</b>	<b>Description</b>
<b>1</b>	Position mandate
<b>2</b>	CVC Employee Structure
<b>3</b>	Number of application & Search areas
<b>4</b>	Screening Process
<b>5</b>	Screening Process Criteria
<b>6</b>	Screening Process Sustainability
<b>7</b>	Screening Process Industry
<b>8</b>	Funding round
<b>9</b>	Valuation
<b>10</b>	Sustainability Definition and Calculation
<b>11</b>	Corporate Strategy
<b>12</b>	CVC Strategy
<b>13</b>	Change in CVC Objective
<b>14</b>	Co-Investors and Competition
<b>15</b>	Country Differences
<b>16</b>	Important Quotes
<b>17</b>	CVC Fund Structure
<b>18</b>	Change in organization
<b>19</b>	Divestment
<b>20</b>	Change in industry - fiercer

### *Appendix 3 - Interview guide*

#### **Guide to interview guide**

- Underlined text is where we filled out company specific information.
- *Italic text* is follow-up/clarifying questions or questions we don't necessarily have to ask.

#### **Introduction**

**First:** Are we allowed to record this meeting? This will not be shared with anyone; it is only for our internal use.

**Our problem statement:** What role does sustainability play, in relation to other factors, in the corporate's evaluation of potential venture investments?

**Second:** We have already had a look at your portfolio, both on your website and on CB insights, a database for venture investments. This will also be served as data for our master thesis and will be used as foundation for what you are telling us here today.

#### **Employees and Organizational Structure**

1. You are Title in Company X, could you tell us a little bit about your role in the CVC unit?
2. Your CVC unit has X employees, how do you allocate the work amongst yourselves?
  - a. Do the different employees specialize in different fields (industries, company size, funding stage, etc.)?

#### **The screening processes**

1. How do you find the companies that you evaluate? Do they send you a funding application or do you contact them, or is it a combination of the two?
  - a. *How many applications do you usually receive in a year?*
  - b. *Where do you find the companies that you contact?*
2. Could you walk us through the process of how you evaluate the ventures you choose to invest in?
  - a. Do you have a concrete list of criteria that you use in the evaluation process?



*ii. Why do you evaluate the sustainability of the firms you invest in?*

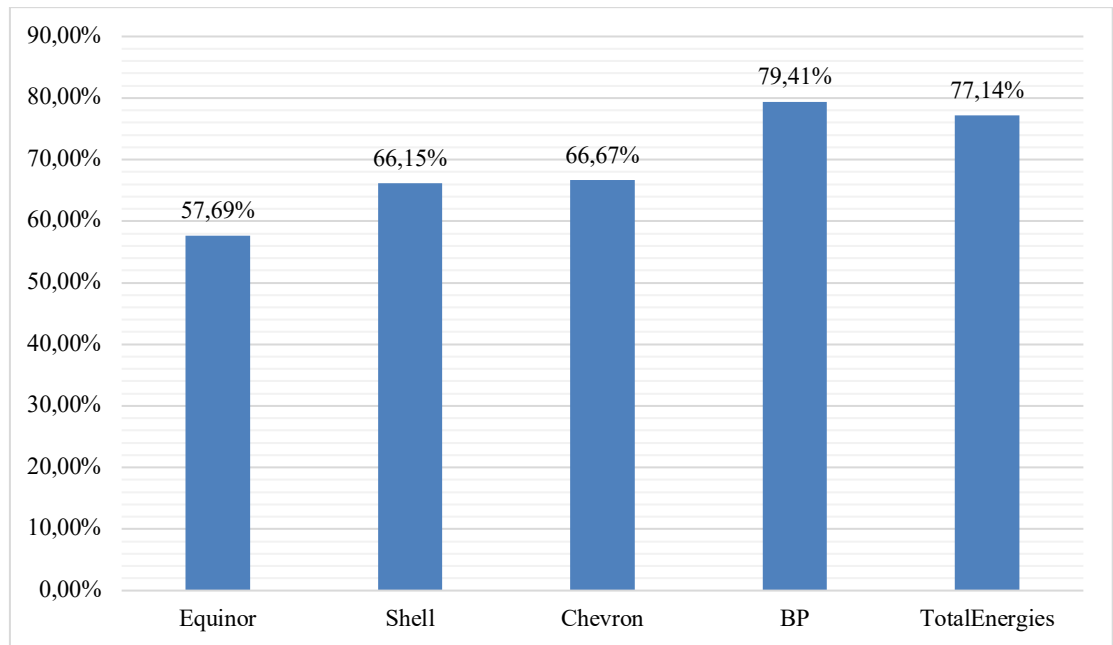
6. Sustainability is a big part of the Company corporate strategy; how do you work to help accomplish those goals?

**Formal**

1. Can we use the Company name, or do you want to be anonymous when the paper gets published on BI Norwegian Business School's pages?
2. Can we use all the information you have given us here today?



*Appendix 4 – Share of sustainable investments*



*Appendix 5 – Sector, Industry and Sub-industry per CVC*

<b>TotalEnergies Ventures</b>		
<b>Sector</b>	<b>Industry</b>	<b>Sub-Industry</b>
Electronics	Electrical Product Distribution	Power Generation & Storage
	Technical & Scientific Instrumentation	
Energy & Utilities	Energy Storage	
	Renewables	Solar Wind
Environmental Services & Equipment	Recycling	
Industrial	Construction	Plumbing & HVAC
	Machinery & Equipment	Robotics
Internet	eCommerce	Travel (internet)
	Internet Software & Services	Green/Environmental Payments Supply Chain & Logistics Travel
Metals & Mining		
Mobile & Telecommunications	Mobile Commerce	Gasoline
		Travel (mobile)
	Mobile Software & Services	Application & Data Integration  Green/Environmental Location-Based & Navigation  Travel
	Telecom Devices & Equipment	Wireless Telecom Equipment
Software (non- internet/mobile)	Green/Environmental Software	

<b>BP Ventures</b>		
<b>Sector</b>	<b>Industry</b>	<b>Sub-industry</b>
Automotive & Transportation	Automobile Manufacturing	
	Automobile Parts	
	Transportation Services	
Computer Hardware & Services	Specialty Computer Hardware	
Electronics	Chips & Semiconductors	Semiconductors: Memory, Networking & Sensor Chips
	Electrical Product Distribution	Power Generation & Storage
	Technical & Scientific Instrumentation	
Energy & Utilities	Energy Efficiency	
	Energy Trading & Marketing	
	Renewables	Bio-energy
Healthcare	Biotechnology	
Industrial	Basic Materials	
	Basic Materials	Specialty Chemicals
	Machinery & Equipment	Robotics
	Manufacturing	Industrial Equipment & Component Manufacturing
Internet	eCommerce	Auto Travel (internet)
	Internet Software & Services	Application & Data Integration Scientific, Engineering
Mobile & Telecommunications	Mobile Commerce	Auto Travel (mobile)
	Mobile Software & Services	Location-Based & Navigation Travel
Software (non-internet/mobile)	Business Intelligence, Analytics & Performance Mgmt. Software	
	Scientific, Engineering Software	

<b>Chevron Technology Ventures</b>		
<b>Sector</b>	<b>Industry</b>	<b>Sub-industry</b>
Automotive & Transportation	Automobile Manufacturing	
Computer Hardware & Services	IT Services	Data Storage & Security
Electronics	Electrical Product Distribution	Power Generation & Storage
	Electronic test, measurement & monitoring	
Energy & Utilities	Energy Efficiency	
	Energy Storage	
	Oil & Gas Storage & Transport	
	Renewables	Hydrogen/Fuel Cell Ocean & Hydro Solar
Environmental Services & Equipment	Recycling	
	Remediation & Environmental Cleanup	
Financial	Investment Banking	
Healthcare	Biotechnology	
Industrial	Basic Materials	Chemicals
	Manufacturing	Industrial Equipment & Component Manufacturing
	Water	Desalination Purification
Internet	Internet Software & Services	Business Intelligence, Analytics & Performance Mgmt.  Data & Document Management  Green/Environmental  Monitoring & Security  Scientific, Engineering

Mobile & Telecommunications	Mobile Software & Services	Location-Based & Navigation
Software (non-internet/mobile)	Business Intelligence, Analytics & Performance Mgmt. Software	
	Conferencing & Communication Software	
	Multimedia & Graphics	

<b>Shell Ventures</b>		
<b>Sector</b>	<b>Industry</b>	<b>Sub-industry</b>
Business Products & Services	Consulting & Outsourcing	QA & Testing
Computer Hardware & Services	IT Services	Infrastructure & Hosting
Electronics	Electrical Product Distribution	Power Generation & Storage
Energy & Utilities	Energy Efficiency	
	Energy Storage	
	Oil & Gas Production & Exploration	
	Oil & Gas Storage & Transport	
	Renewables	Bio-energy Hydrogen/Fuel Cell Ocean & Hydro Other Renewables Solar Wind
Environmental Services & Equipment	Environmental & Energy Consulting	
	Hazardous Waste Services	
Industrial	Aerospace & Defense	Commercial aircraft manufacturing
	Basic Materials	Chemicals Specialty Chemicals
	Machinery & Equipment	Robotics
	Manufacturing	Industrial Equipment & Component Manufacturing
	Pollution & Treatment Controls	
Internet	eCommerce	B2B Commerce Comparison Shopping Marketplace Travel (internet)
	Internet Software & Services	Accounting & Finance Business Intelligence, Analytics & Performance Mgmt.  Collaboration & Project Management  Green/Environmental

		Scientific, Engineering Supply Chain & Logistics
Mobile & Telecommunications	Mobile Commerce	Marketplace  Travel (mobile)
	Mobile Software & Services	Green/Environmental
Software (non- internet/mobile)	Business Intelligence, Analytics & Performance Mgmt. Software	
	Collaboration & Project Management Software	
	Green/Environmental Software	
	Operating Systems & Utility Software	
	Scientific, Engineering Software	
	Testing	

<b>Equinor Ventures</b>		
<b>Sector</b>	<b>Industry</b>	<b>Sub-industry</b>
Business Products & Services	Consulting & Outsourcing	Research, Engineering & Technical
Electronics	Chips & Semiconductors	Semiconductors: Sensors
	Electrical Product Distribution	Power Generation & Storage
Energy & Utilities	Electric	Nuclear
	Energy Efficiency	
	Energy Storage	
	Renewables	Solar Wind
Environmental Services & Equipment	Remediation & Environmental Cleanup	
Industrials	Machinery & Equipment	Robotics
	Manufacturing	Diversified Machinery Manufacturing
Internet	Internet Software & Services	Business Intelligence, Analytics & Performance Mgmt.  Environment Manufacturing, Warehousing & Industrial
Software (non-internet/mobile)	Business Intelligence, Analytics & Performance Mgmt. Software  Data & Document Management Software  Science & Engineering	



## *Appendix 6 – NSD Consent Form*

### **Are you interested in taking part in our research project “The Role of Sustainability in CVC investments”?**

This is an inquiry about participation in a research project where the main purpose is to research the CVC activities within the Energy sector, and the role of sustainability in the screening process of venture firms.

#### **Purpose of the project**

More specifically, we are analyzing some of the largest oil and gas companies in the world and how they take sustainability into account when investing.

Our research question is: What role does sustainability play, in relation to other factors, in the corporate's evaluation of potential venture investments?

In this letter we will give you information about the purpose of the project and what your participation will involve. This research project is a part of our master's thesis. The data collected will only be used for the purpose of this thesis.

#### **Who is responsible for the research project?**

*BI Norwegian Business School* is the institution responsible for the project.

Supervisor – Sheryl Winston Smith

*Student – Bjørnar Solheim Stevning*

*Student – Linnéa Filippa Bjørnstad*

#### **Why are you being asked to participate?**

We have asked you to participate as you work in a venture department for a major oil and gas company. We are currently also in contact with four other major oil and gas companies.

#### **What does participation involve for you?**

If you chose to take part in the project, this will involve an online video interview which will last 30-60 minutes. We will ask some questions about your venture department, the screening process of ventures, sustainability and industry of the ventures and CSR. The interview and your answers will be video recorded.

#### **Participation is voluntary**

Participation in the 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 chose not to participate or later decide to withdraw.

### **Your personal privacy – how we will store and use your personal data**

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- *Only the students will have access to video recording of the interview*
- *We will replace your name and contact details with a fictive name and we will store the data on a server which requires two-factor authentication.*

*Participants can be recognizable in publications through occupation, but we will not use your name nor age. Your company will also be given a fictive name.*

### **What will happen to your personal data at the end of the research project?**

The project is scheduled to end 01.07.2022.

The video records will be deleted at the end of the project. Together with other personal information.

### **Your rights**

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

### **What gives us the right to process your personal data?**

We will process your personal data based on your consent.

Based on an agreement with *BI Norwegian Business School*, Data Protection Services has assessed that the processing of personal data in this project is in accordance with data protection legislation.

### **Where can I find out more?**

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

- *BI Norwegian Business School* via *Sheryl Winston Smith*.  
[Sheryl.w.smith@bi.no](mailto:Sheryl.w.smith@bi.no) / +4746410540
- Our Data Protection Officer: Vibeke Nesbakken  
[personvernombud@bi.no](mailto:personvernombud@bi.no)
- Data Protection Services, by email: ([personverntjenester@sikt.no](mailto:personverntjenester@sikt.no)) or by telephone: +47 53 21 15 00.

Yours sincerely,

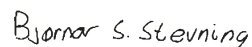
Project Leader

Sheryl Winston Smith



Student

Bjørnar Solheim Stevning



Student

Linnéa Filippa Bjørnstad



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## **Consent form**

I have received and understood information about the project “The Role of Sustainability in CVC investments” and have been given the opportunity to ask questions. I give consent:

- to participate in a video interview which will be recorded, and the content will be used strictly for research purposes of this master thesis.

I give consent for my personal data to be processed until the end date of the project, approx. 01.07.22

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(Signed by participant, date)