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**Joint Venture Announcements and Firm Value in the Upstream Oil and Gas Industry:**

**a Resource Based View**

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**ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ**

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**Abstract**

The Resource-Based View (RBV) perspective sees firms as a collection of resources which it utilises in specific combinations to create capabilities and in turn competitive advantages. This study uses RBV to analyse how joint venture announcements effect firm value in the Oil & Gas upstream sector. It employs the event study method to investigate 78 Joint Venture announcements in the industry over an 18-year period between 2002-2022. The paper finds that overall joint venture announcements create positive abnormal returns for the firms and that specific deal and firm characteristics, such as the primary industry the parent firms are operating in had significant effect on abnormal returns, which can be explained with RBV. Managerial implications centre around the empirical findings indicating that when using joint ventures as a tool for strategic growth, the focus should be on accessing complimentary capabilities based on the nuances of the industry as opposed to information asymmetries and diversification. Theoretical implications came in the form of a rebuttal of the criticism that RBV is less applicable to unstable industries where technological advancements can have significant impacts on competitive advantages. Conclusions, limitations and suggestions for future research are also included. The authors name is Joe Elliot Bolton and my supervisor for the paper is Olga L. Garanina, associate professor of the strategic and international management department. The title of the paper is: *Joint Venture Announcements and Firm Value in the Upstream Oil and Gas Industry: a Resource Based View.*

**Abstract**

Точка зрения, основанная на ресурсах (RBV), рассматривает фирмы как совокупность ресурсов, которые она использует в определенных комбинациях для создания возможностей и, в свою очередь, конкурентных преимуществ. В этом исследовании RBV используется для анализа того, как объявления о создании совместных предприятий влияют на стоимость компании в секторе добычи нефти и газа. В нем используется метод изучения событий для изучения 78 объявлений о совместных предприятиях в отрасли за 18-летний период с 2002 по 2022 год. В документе делается вывод о том, что в целом объявления о совместных предприятиях создают положительную ненормальную доходность для фирм и что конкретные характеристики сделок и фирм, такие как основная отрасль, в которой работают материнские фирмы, оказали значительное влияние на ненормальную доходность, что можно объяснить с помощью RBV. Управленческие последствия сосредоточены вокруг эмпирических результатов, указывающих на то, что при использовании совместных предприятий в качестве инструмента стратегического роста основное внимание следует уделять доступу к дополнительным возможностям, основанным на нюансах отрасли, в отличие от информационной асимметрии и диверсификации. Теоретические выводы были сделаны в форме опровержения критики о том, что RBV менее применим к нестабильным отраслям, где технологические достижения могут оказать значительное влияние на конкурентные преимущества. Также включены выводы, ограничения и предложения для будущих исследований. Автора зовут Джо Эллиот Болтон, а мой научный руководитель - Ольга Л. Гаранина, доцент кафедры стратегического и международного менеджмента. Название статьи: Объявления о создании совместных предприятий и стоимость фирмы в нефтегазовой отрасли: взгляд, основанный на ресурсах.

Keywords: Resource Based View, Knowledge Based View, capabilities, dynamic capabilities, joint ventures, strategy, oil and gas, event study.

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# **1: Introduction**

## **1.1: Introduction**

Joint ventures are a form of strategic alliance and there are a vast number of combinations, benefits and motives when it comes to joint ventures and different ways to analyse them. The resource-based view sees firms as a collection of resources whereby it is the combination of these resources that result in capabilities able to give firms competitive advantages. Joint ventures can significantly change the pool of available resources, for example, by allowing firms to expand their intellectual capital and in turn gain competitive advantages. In this way the topic aligns with resource-based view analysis which can be used to look at how joint ventures and their specific characteristics can affect the value of a firm (Park, Mezias and Song, 2004).

My research will take the form of an event study, whereby I look at the stock price of firms around a window of a joint venture announcement to identify any abnormal returns to be able to determine how joint ventures effect the value of a firm. This is grounded in the efficient market hypothesis, the theory that states that share prices fully reflect all the information about a firm. The effects of joint ventures have been studied in many industries but Park, Mezias and Song, J, (2004) note the common industries include aerospace, airline, automobile and biotechnology; not including energy or oil & gas to this. To carry out the research I have chosen to focus on the upstream oil & gas industry. The upstream oil & gas sector is somewhat unique in that to a large extent energy prices drive value for oil & gas firms, this combined with the fact that International Oil companies do not have privileged access to traditional reserve’s means that international oil companies face specific competitive pressures. As such, international oil companies have to develop technologically advanced and resource heavy methods for frontier extraction and have an increased focus on operational efficiency. Such projects are extremely challenging and difficult in terms of technologies and therefore companies will need to unify their resources and competencies to develop projects such as complex fields in the arctic or floating Liquified Natural Gas projects. Moreover, it is the farthest point from the user in the supply chain and therefore the nature of the joint ventures and their effects on the value of the firm can provide unique insights.

Vijay Pereira and Umesh Bamel, (2021) have noted how viewing strategic alliances such joint ventures from a Resource Based/ Knowledge Based view perspective is still very much current. Further, based on their research it seems that the oil & gas industry is a good industry to look at from a theoretical perspective for a number of reasons. First, it is an innovation intensive industry and the Resource Based View literature on innovations has a lesser degree of maturity. Second, alliances enable firms to access various types of resources, particularly in the acquiring, creation, distribution and use of knowledge, seeing knowledge as an important ingredient for organisational success. As such, I believe that viewing joint ventures in the oil & gas sector from a resource based/ knowledge-based view will build on current literature and give interesting insights into the value of knowledge transfer in said alliances. Based on the above, I believe that my topic is interesting and relevant to the literature on both Strategic alliances, specifically joint ventures, and the resource-based view.

The topic and research is both interesting and relevant in a more practical sense too. The energy transition is hugely topical at the moment and the energy sector along with the rest of the world only seem to be moving in one direction. The result is that the challenges of complex extraction become even more complex owing to the high levels of environmental scrutiny. Companies must focus not just on economic and operational efficiency but also the environmental impact which may include “local contamination, local social and economic displacement, water use, and greenhouse gas emissions” (Garcia et al, 2014).

So it begs the question if joint ventures in the upstream are still able to add enough value to oil and gas firms to be viable. This move towards a more sustainable economy may require certain innovations in the upstream which will require new and complex technologies, many of which may be created via joint ventures in the sector. Many of the joint ventures analysed are aligned with todays policy discussion, such as Liquified natural gas, shale extraction or deep-water exploration. In this way the topic is relevant to todays current policy discussions. In a similar way, I will try and correspond the analysis to the state of the oil business. For example, flexibility is an important issue at the moment because there is such strong market uncertainty and companies such as the oil majors (BP, Shell, Total etc.) will be interested in increasing their possibility to adapt, for example by entering into strategic alliances with shale producers because the shale investment cycle is shorter and investment can be started a lot faster than traditional oil and gas sites. Based on the above, in keeping my topic and research current in terms of policy discussion and state of the sector, it is interesting and relevant in a practical sense too.

To carry out the research I will be employing the event study methodology. After filtering and cleaning the data I obtained from the Zephyr, Bureau Van Dijk and Thompson Reuters Eikon Database we were left with 78 Observations. First, the paper will conduct a literature review of RBV, Joint ventures and the oil and gas industry which we will draw upon to formulate our hypotheses. Next there will be a discussion of the methodology and data collection. This is followed by a presentation of the empirical findings and a subsequent discussion from which we can infer the managerial and theoretical contribution of the paper. Finally, I will discuss limitations of the study with a conclusion and recommendations for future research.

## **1.2 Research Goal and Objectives**

The above introduction brings me on to the formulation of the research goal:

*To determine what impact joint ventures announcements have on firms in the Oil & Gas Upstream in the period of 2002-2020.*

Following on from this and in order to fully address our Research goal, The following research questions are formulated:

1. Do Joint ventures announcements contribute to overall value creation, measured as shareholder value?
2. In what way do firm and deal specific characteristics contribute to the overall value creation following joint venture announcements?
3. What are the most valuable resources and/ or capabilities transferred or shared in joint ventures in the oil & gas upstream?

# **2: Literature Review**

## **2.1: The Resource Based View**

The resource based view has been prevalent in literature for over 30 years, and is one of the most influential management theories to date. It views firms as a pool of both tangible and intangible resources, and states that a firms competitive advantages are based on an ability to leverage its valuable resources (Barney, 1991). Makadok (2001) identifies that resources and capability building are not mutually exclusive. Where he defines capabilities as “a firm’s capacity to deploy resources, usually in combination, using organisational processes, to effect a desired end” (Makadok, 2001). It is thus argued that firms combine their resources, such as financial, human, and physical, to create sustained competitive advantages. A substantial amount of the literature also sees those capabilities which are valuable, rare, inimitable and organised as creating sustained competitive advantages that result in higher economic rents being earned by companies in the long run. This is known as the VRIO model. Regarding the Organisational aspect of the VRIO model, Chatzoglou, Chatzoudes, Sarigiannidi, and Theriou, (2018) note that in addition to a resource being Valuable, Rare and inimitable Barney (1997) argues that “a firm also needs to be organised in such a manner that it could exploit the full potential of those resources, if it is to attain competitive advantage”. Regarding the inimitable aspect of the VRIO framework, it should be noted that whilst of course the large majority of resources are imitable, for example, a AAA credit rating or a large manufacturing plant, they are nevertheless hard to imitate; not only this but the “I” doesn’t stand alone, we combine these hard to imitate resources with the other elements in the VRIO framework to analyse a company’s competitive advantages.

To illustrate, in a competitive environment firms need to adapt to constant change, a firm with large financial resources such as revenue and a AAA credit rating, alongside human resource skills in the shape of employees who possess specialized knowledge, will be able to properly exploit and integrate this knowledge to gain a competitive advantage in the market (Herden, 2020). In this sense we are defining a firms ability to successfully adapt to change as a sustained competitive advantage.

## **2.2 Resource based view critical analysis**

Being prevalent for over 30 years, naturally the Resource Based View has not been without its critics. One critique highlighted by Kraaijenbrink, Spender and Groen (2010) is that in focusing on resources as the firms most significant component and RBV’s interpretation of firms as bundles of those resources, “RBV is explicitly reductionist. It stands against holistic of emergent theories that liken firms to organisms with complex feedback-controlled mechanisms focused on boundary maintenance”.

Many critiques offer potential improvements and to which there have been numerous responses from the likes of Barney (2001, 2002, 2008). Regarding critiques about the theories applicability being limited Barney (2001, 2002, 2008) has responded that the theory holds provided that an industry is somewhat stable in the sense that its environment is not unpredictable, where if new technologies emerge the value we place on resources and their contribution to sustainable competitive advantages does not drastically change.

Kraaijenbrink, Spender and Groen (2010) also note that critiques of RBV fall into eight categories:

1. RBV has no managerial implications
2. RBC implies infinite regress
3. RBV’s applicability is too limited
4. Sustainable competitive advantage is not achievable
5. RBV is not a theory of the firm
6. VRIO is neither necessary nor sufficient for sustainable competitive advantage
7. The value of a resource is too indeterminate to provide for useful theory, and
8. The definition of resource is unworkable.

I argue that whilst many of the critiques against RBV are valid, critiques a) to e) are either false, not relevant or only hold when we take RBV to the literal extreme. However, critiques put towards the VRIO framework being insufficient for sustainable competitive advantages, toward the value of resources being too indeterminate and the definition of resources being unworkable provide some more serious challenges that should be tackled for the theory to fully be able to explain sustained competitive advantages (Kraaijenbrink, Spender and Groen, 2010).

Despite above criticisms, Scholars have used resource-based theory to tackle numerous challenges relating to competitive advantages from numerous perspectives. One particularly interesting offshoot of RBV is the knowledge-based view, which sees knowledge as a key strategic resource that determines firm performance in the long run (Curado and Bontis, 2006). Kong et al. (2020) have employed the knowledge-based view in a green supply chain initiative to foster innovation. Martin and Javalgi (2019) have looked at performance determinants of international new ventures from a knowledge-based perspective.

Vijay and Umesh, (2021) have noted some future directions for the Resource based view, they have identified that the field of innovation has a lesser degree of maturity. This is interesting for my research as the oil & gas industry is an innovation intensive industry and joint ventures often centre around new innovations. Moreover, they have noted how alliances enable firm’s access to various types of resources and promote the firms ability to acquire, create, distribute and use knowledge, seeing knowledge as an important ingredient for organisational success. Joint ventures in the upstream often revolve around knowledge transfer, in this sense it will be beneficial to the literature for me to discuss the transfer of knowledge when analysing joint ventures from the resource based/ knowledge-based view.

Overall, in being one of the most influential management theories to date with prevalence of over 30 years, naturally RBV has it’s critiques. Kraaijenbrink, Spender and Groen, (2010) convincingly argue that whilst there are some serious challenges that must be tackled, many of these critiques are either false, not relevant or only hold when we take RBV to the literal extreme. Further, scholars continue to advance the RBV/KBV and based on Vijay and Umesh‘s (2021) work it seems that the literature on innovation intensive industries is immature and could be developed further. Moreover, joint ventures enable firms to access various types of resources, particularly in the acquiring, creation, distribution and use of knowledge, seeing knowledge as an important ingredient for organisational success.

Park, Mezias and Song (2004) note the common industries analysed with RBV include aerospace, airline, automobile and biotechnology with energy not being included in this list. I have noted the nature of the upstream being wholly technological but additionally the fact that the oil & gas upstream exists at the farthest point in the supply chain from the consumer provides a uniqueness compared to most industries. Combining this with the fact that literature on innovation intensive industries is premature, It follows that a research gap exists concerning the effect that joint ventures as a whole have on the value of firms in the upstream. Further, within this research gap we want to analyse how the different characteristics of joint ventures effect the value of firms in the upstream in order to determine which resources and capabilities are most valuable.

## **2.3: Joint Ventures**

We must define what is meant by a joint venture, or rather how we will interpret the term joint venture in the context of it being a strategic alliance. Joint ventures have been defined by Williamson (1985) as a way of inter-organisational cooperation, categorized as a hybrid governance structure and we will take on this workable definition. Joint ventures are complex and usually they take the form where two or more firms create a legally independent firm to share their resources and capabilities, they are effective in “establishing long-term relationships and in transferring tacit knowledge” (Uddin and Akhter, 2011). An example in the energy sector is the “joint venture between Shell and Amoco in the Permian Basin of west Texas and the partnership between Shell and Mobil on the west coast” of the USA (Ernst and Steinhubl, 1999).

Joint ventures can be considered as a type of strategic alliance, which would give scope to analyse strategic alliances rather than just joint ventures and then assess the nuances in resource transfer between different types of alliances. However, Anderson (1990) interpreted the Joint venture as being a separate entity and as such distinct from a strategic alliance between two firms. When it comes to the oil & gas upstream sector, fiscal consequences influence the selection of appropriate structures of strategic alliances and international agreements often take the form of a joint venture. Gallardo (2015) notes that “companies from particular countries carefully determine the structures of their joint ventures to avoid the joint venture being considered as a taxable entity in terms of a corporation or tax partnership.” As such, the oil & gas upstream is characterised by Joint ventures. Of course, joint ventures are not simply designed for fiscal and tax purposes, as stated previously they are an effective way for firms to transfer resources. Indeed, in advancing the resource-based view, Barney (1997) argues that “a firm also needs to be organised in such a manner that it could exploit the full potential of those resources, if it is to attain competitive advantage” and joint ventures can be seen as a particular way of firms getting organised with this end in mind.

As mentioned, there is scope to explore strategic alliances, such as R&D agreements and Equity participation strategic alliances, which would widen our research. The latter occur when a company purchases an amount of shares in another company and vis versa. They are a viable alternative to joint ventures in that Management capabilities and operations activities can be shared and knowledge can be transferred. Often, “foreign direct investments such as those made by Japanese and U.S. companies in China are completed through equity strategic alliances” (Uddin and Akhter, 2011). However, Uddin and Akhter (2011) note that “In a complex venture where success necessitates transfer of implied knowledge and expertise, nonequity strategic alliances are unsuitable because of their relative informality and lower commitment.” Moreover, other forms of strategic allainces such as marketing alliances are both less formal and less applicable to an upstream industry. It comes as no surprise then that in the oil & gas Industry strategic alliances often take the form of joint ventures, not least for fiscal considerations but also because the strategic alliances in the upstream are almost exclusively technological and complex. As such, when considering strategic alliances in the Oil & Gas Upstream, it is both reasonable and practical to focus on Joint Ventures.

To summarise, establishing joint ventures is critical for most firms in the upstream oil & gas sector. Park, Mezias and Song (2004) note how strategic alliances can “help firms conserve resources, share risks, obtain information, access complementary resources, reduce product development costs, improve technological capabilities and enhance reliability.” Following on from this, the Resource Based View argues that firms combine and utilise said resources and capabilities to develop core competencies, resulting in sustainable competitive advantages. RBV arguments imply that firms can create competitive advantages from the resources of alliance partners and firms may derive competitive advantages from resources semi-permanently tied to the firm (Mezias and Song, 2004). Knowledge transfer such as technical know-how, is. Particularly powerful resource and capability allowing firms to build up their existing resources to create competitive advantages. It is no surprise then that Joint Ventures tend to find positive CAARs. For example, the US Joint ventures have a CAAR of around 0.88% (McConnell and Nantell, 1985; Keown et al., 2005).

Thus, when considering the Oil & Gas Upstream Industry, our first hypothesis becomes:

Hypotheses 1: Joint Venture announcements from upstream oil & gas firms will create positive abnormal returns.

## **2.4: Oil & Gas industry Review**

The Oil and gas upstream sector is an established industry that is concerned with the various different methods in the exploration and extraction of Oil and Gas. Further, It operates at the farthest point from the user in the oil & gas supply chain. Depletion of resources and development of technologies have made the industry increasingly technological and resource intensive over the years. Companies that are not nationally owned often compete for the rights to explore and extract reserves. We combine oil & gas together as one industry because of their extremely high correlation/ relationship. For example, most multinational firms often produce oil & gas as opposed to specialising. When producing oil, gas is a common by-product and exploration of reserve’s often produces both gas and oil. Moreover, whilst being priced differently, several studies have shown that the long-term relationship between the price of the two to be significant (Brigida, 2014; Nick and Thoenes 2014; Lahiani et al, 2017). Another key consideration about the industry is that much of the value of oil & gas firms is driven by the price of oil and gas in the markets, a value over which they have almost no impact and commodities which can be extremely volatile.

In terms of the recent history of the industry, the Organisation of Petroleum Exporting Countries (OPEC) was formed in 1960, consisting of Venezuela, Saudi Arabia, Kuwait, Iraq and Iran. This was in part a reaction to the size of the ‘seven sisters’, all of which had fully integrated supply chains. The sisters now exist as BP, Shell, Chevron and ExxonMobil. Having lost power to the OPEC countries and in order to reduce dependence on them, following a sharp rise in oil prices the international oil companies invested heavily in exploration activities outside of OPEC countries such as in the North Sea, Alaska and Mexico. An M&A wave took place between 1979-1984 in which all sisters were involved (Baaij et l., 2011). The 1970’s also saw the rise in nationally owned oil companies, who tended to have political, and therefore different, objectives to the international oil companies. In the 90’s the oil price collapse and an all-round oversupply of oil from failings of the OPEC cartel to effectively enforce quotas saw a shift to a more efficiency focused regime. This combined with a lack of growth opportunities due to National oil companies led to an efficiency focus (Baaij et l., 2011). The 21st century has seen more price collapses such as in 2013 and also infamous environmental events like the Deepwater Horizon Gulf of Oil Mexico oil Spill in 2014. As well as the growth in exploration and production from non-OPEC producing countries such China, Brazil and Russia. Recently, we have seen increases in complex technologies to extract oil and gas. Such as Shale gas production, floating LNG fields and Arctic exploration. Further, the whole energy sector is currently being characterized by the narrative on decarbonization, with oil and gas supermajors such as BP fully committing to decarbonising to net zero by 2050. In light of the increase in investments towards the transition, Fane (2021) notes how there are “good questions about the fit between oil company competencies and success factors in the… renewable energy sector”.

Where international companies have little control over prices in the industry, a key competitive advantage is reductions in costs. Some reserves are more easily accessible than others which result in lower production costs, however much of these reserves exist in countries where international oil companies have little leverage. Oil & Gas firms can try and reduce costs of production through either economies of scale, economies of scope or by outsourcing. Regarding economies of scope, expansion to other regions where you are currently not extracting allows for firms to spread costs, risks and resources. Additionally, the ability to transfer knowledge and other resources along the value chain can increase the efficiency of a companies portfolio of assets (Inkpen and Moffett 2011).

One more key consideration is reserves, whereby access to new reservoirs are a key value driver in the industry. Much of the value of firms is based on the reservoirs they have available to them. Where a firm may have access to one large reservoir, this will eventually be depleted. Instead, access to new reservoirs is a key driver of value as they are indication of future profitability. Where traditional, easy to extract reservoirs are have been increasingly depleted and where international oil companies are often unable to gain privileged access to such reserves international oil companies are facing competitive pressures. They have increasingly had to turn to developing innovative methods of extraction, which are both technologically advanced and resource intensive. As such, a key way for International oil companies to gain competitive advantages over each other is through technology development and operational efficiency. One way of doing this is through the creation of joint ventures whereby firms can share knowledge and resources in order to achieve competitive advantages.

Oil & Gas upstream firms have a range of potential investment opportunities in resource intensive projects. Many new technologies make historically less accessible or accessible but too expensive to extract reserves a reality. For example, ultra-Deepwater extraction, extraction in the arctic, liquified natural gas, shale extraction and floating LNG fields. These investment opportunities all require different capabilities to be successful.

Now turning away from oil and gas companies like the oil majors, all of which have fully integrated supply chains. The Deloitte review (2014) ‘understanding exceptional performance in upstream oil and gas uses the looks at returns on assets (ROA) to investigate what guiding principles can inform the strategic decisions facing the oil and gas industry. They found that firms with a higher degree of focus were more likely to receive higher return on assets whereas companies of similar sizes that were highly diversified tended to receive a lower ROA. To summarise, when looking back at historical patterns in the oil and gas industry, the Delloite review (2014) found that companies who saw higher ROA have a “greater consistency of effort and a higher degree of focus”. Overall, ROA advantage is gained by having assets with higher gross margins and driving profitability through maximising incremental volume. The review goes on to stipulate that the greater degree of focus likely created specialised knowledge.

## **2.5 Oil & Gas Joint Venture and firm specific characteristics**

Based on the above sections in the literature review, the following section seeks to tie in RBV, Joint Ventures and the specifics of the Oil & Gas industry. It does so by speculating on some key firm and deal specific characteristics of oil & gas joint ventures and hypothesis’s on their impact on overall value creation

### **2.5.1 Primary Industry**

Hennart and Reddy (1997) have highlighted the view that joint ventures are an attractive way to mitigate against information asymmetries. That is, where firms from two different industries co-operate, Joint ventures are valuable because it saves them from potential valuation and operating problems in an acquisition. Instead, joint ventures allow firms to share resources in way where “the learning that follows allays the adverse selection problem that can arise from initial valuation uncertainties in an outright acquisition” (Reur and Koza, 2000). Indeed, Reur and Koza (2000) obtain results showing that usually a greater amount of shareholder value is created in joint ventures where asymmetric information exists between the two parent firms.

On the other hand, Koh & Venkatraman (1991) have determined that abnormal returns are positively correlated with business similarity, meaning that joint ventures where the parent company is in the same industry and serving the same functions are likely to have greater abnormal returns. This research does not however take into account the returns based on the primary functions of the parent companies. Having two parent companies with the same function provides opportunities for economies of scope whereby there is an ability to transfer resources and capabilities, such as knowledge, across the value chain. Merchant and Schendel (2000) have noted how this can generate superior insights and competitive advantages. Further, Hennart and Reddy (1997) have argued that Joint ventures are not a good method for diversification. Where firms are form different industries, information asymmetries are likely to be problematic and, In this sense, joint ventures are better suited to scale up their economies.

Based on the above, we can explore the considerations further in the context of our industry. First, we know from the above section analysing the oil and gas industry that firms with a higher degree of focus and a greater consistency of effort are likely to see a higher return on assets due to the creation of specialised knowledge (Deloitte, 2014). Further, we know that international oil companies are positioning themselves and their capabilities in different ways, such as Shell in LNG and BP in deep water. This in turn creates information asymmetries between oil and gas companies that are further pronounced when we look at the whole industry rather than focusing too heavily on the supermajors. Combining this with the fact that we have empirical evidence from Reur and Koza (2000) who obtain results showing that usually a greater amount of shareholder value is created in joint ventures where asymmetric information exists between the two parent firms, our second hypothesis becomes:

Hypothesis 2: Abnormal returns attributable to companies with the different primary industries create greater value than joint ventures between companies in the same primary industry.

### **2.5.2 Domestic Vs International joint Ventures**

Much of the literature on both Joint Ventures and RBV explores how the characteristics of joint ventures effect the value of the firm. As stated earlier fiscal consequences influence the creation of the structure of strategic alliances, many of which are international and become joint ventures. On the point of fiscal considerations, many international joint ventures take place between countries of different regions, where one partner exists in what would be considered riskier markets to operate in for political and economic reasons. For example, the oil & gas supermajors often engage in Joint Ventures with Russian firms. In doing so they gain access to the Russian market/ Russian reserves, certain resources such as local knowledge and then where all the usual exchange of resources such as knowledge can follow in the joint venture.

Nevertheless, ceteris paribus, from an RBV perspective, the transfer of key resources should theoretically be similar in Joint Ventures between firms in the same country/market/region and joint ventures occurring between firms in different countries. Therefore, the increased political and economic risks that come with engaging in these cross border joint ventures may result in abnormal returns being higher for domestic joint ventures.

The caveat to this is that many International Joint Ventures from firms operating in countries with lower political and economic risks are done so to gain access to more reserves. Many oil & gas firms are dependent on sustaining their reserves bases and this is increasingly done cross borders where domestic reserves are depleting. The question here is weather expansion to gain access to more reserves is such a strong industry trend that it can be considered a normal part of business operations. If yes, then domestic joint ventures could be seen from the RBV perspective as being more concerned with the transfer of resources and capabilities such as technical know-how along the value chain. As such the second hypothesis becomes:

Hypothesis 3: Abnormal returns attributable to domestic joint ventures create greater value than international joint ventures.

### **2.5.3: Firm Size**

Another characteristic that may effect value creation is the size of the firm(s), this can be overall size or size relative to the joint venture partners. One parameter to measure size is market capitalisation, whereby ‘large cap companies’ are defined as those with a market capitalisation at the time of the joint venture over $2bn. Mid cap companies are defined as those with a market capitalisation at the time of the joint venture of $300m to <$2bn. (here were no small cap companies in any observations for this study). Prior studies taking into account the size of companies in joint ventures have not shown consistent findings (Koh and Venkatraman, 1991; Annand and Khanna, 2000; Burton et al., 1999).

On the one hand, the size of the firm is positively correlated to the size of the joint venture, resulting in a greater expansion of resources. Not only this, but where many of the large Oil & Gas firms are characterised by fully integrated supply chains, operating in all parts of the sector, the potential to transfer resources across the value chain in joint ventures increases.

On the other hand, large firms often see joint ventures as a means to gain access to tacit knowledge. This can be interpreted to mean that there often exists asymmetric resource dependence, where smaller firms have better bargaining power in the creation of the joint venture, leading to an ability to create more value for the smaller firm (Das, Sen, & Sengupta, 1998). Following on from this, our fourth hypothesis becomes:

Hypothesis 4: Abnormal returns attributable to firms with non-large sized market capitalisations create greater value than firms with large market capitalisations.

# **3: Research Gap**

Park, Mezias, and Song, J, (2004) note the common industries analysed with RBV include aerospace, airline, automobile and biotechnology with energy, oil and gas not being included in this list. Given the history of M&A waves in the Oil & Gas industry there are a number of papers analysing M&A in the industry (Moeller et al. 2005; Harford, 2005; Bhagat et al. 2005). Indeed, M&A are strategic tools for growth that can be easily analysed with RBV, where there are direct transfers of resources such as oil reserves. Like M&A, Joint ventures can also be used as strategic tools for growth but the transfer of resources is often more dynamic, centring on complex capabilities, particularly in the oil & gas sector.

In this sense, it is surprising that more literature does not exist on strategic alliances in the oil & gas sector given that it is a highly competitive industry in which many of the international oil companies all share similar sets of resources owing to their size and fully integrated supply chains which in turn makes capabilities the bedrock of strategy in the oil and gas industry (Garcia et al, 2014). The capabilities that will be able to provide long term competitive advantages in a highly technological and competitive sector like oil and gas are complex bundles of complimentary capabilities that are used in a way to solve the key challenges of the industry. Garcia et al (2014) do indeed explore strategic partnering in the oil & gas industry from the resource-based view perspective, discussing what the implications are for corporate strategy. For example Shell is focusing on becoming a leader in global LNG, BP in deep-water oil and ExxonMbobil in unconventional. Garcia et al (2014) also note that there is “little hard evidence regarding their (strategic alliances) role in competitive performance or in shaping corporate strategies”. In this way, my paper will address the research gap, providing a complimentary quantitative study that can be used to assess the implications of joint ventures. The research will also seek to determine what the dynamics of the oil and gas industry are in relation to joint ventures by analysing firm and deal specific characteristics and their impact on value creation. This will help to contribute to the RBV literature as we will be able to make inferences about what resources and capabilities that are transferred between firms are most valuable.

Moreover, Vijay Pereira and Umesh Bamel, (2021) have noted some future directions for the Resource based view; they have identified that the field of innovation has a lesser degree of maturity. In this way, by focusing on the Oil & Gas upstream we are contributing to the literature, which is lacking in highly innovative and technical fields.

# **4: Hypotheses**

Hypotheses 1: Joint Venture announcements from upstream oil & gas firms will create positive abnormal returns.

Hypothesis 2: Abnormal returns attributable to companies with different primary industries create greater value than joint ventures between companies with the same primary industry.

Hypothesis 3: Abnormal returns attributable to domestic joint ventures create greater value than international joint ventures.

Hypothesis 4: Abnormal returns attributable to firms with non-large sized market capitalisations create greater value than firms with large market capitalisations.

# **5: Methodology**

## **5.1: Event Study Method**

The event study is a popular statistical method used to determine the impact that a given event has on a firm, usually the value of the firm. “The short-term event study method, grounded in the Efficient Market Hypothesis, is one of the most widely used tools for quantifying the impact of a specific event on a firm’s shareholder value” (Ding, Lam and Cheng, 2018). This is particularly relevant for the finance, economics, management, and accounting fields. For example, in our case it will be the effect that joint venture announcements have on the value of the firm. Grounded in the efficient market hypothesis this can be interpreted as the effect that joint ventures in general have on the value of firms.

The efficient market hypothesis has three forms, weak, semi-strong and strong. Fama (1969 and 1970) defined the semi strong form of the efficient market hypothesis as a situation whereby all publicly available information is fully reflected in the price of the financial asset, which includes historical prices and information. Prices will adjust rapidly to incorporate any new publicly available information on the market. The implication is that investors are unable to obtain abnormal returns from investing in these assets and neither fundamental or technical analysis are effective in generating abnormal returns for the investor.

The event is usually considered to be some kind of an announcement, either on a company website or by the news media. Following, this can either be a rumour or an announcement, events first published on company websites tend to be announcements of a deal that is already completed or assumed to be completed by the parties involved whereas there is much more variety in publications by the media as to if the announcement is a rumour or if it is completed or can be assumed to be completed. The implications of this are important, because the more likely an event is, the greater of an impact its announcement will have on the stock price.

### **5.1.1 Abnormal Returns**

To determine the impact that an event has on the value of a company, first event studies usually look at abnormal returns. Which are the difference between the observed returns of a particular stock and the expected returns based on some kind of model, such as the Market Adjusted Model.

Where is the estimated abnormal return for event i at time t.is the realised return on the observed security and are the expected normal returns based on the benchmark model.

As we will be doing an event study with the events on multiple firm-specific event dates we need to aggregate abnormal returns, this is our cumulative average abnormal returns (CAR)

Subsequently we will aggregate our CARs to obtain our cumulative average abnormal returns (CAAR).

Where:

### **5.1.2: Modelling the Security price Reaction**

Expected normal returns are the returns we would expect to see on the condition that the event had not taken place. To model the expected normal returns for each event there are a number of different methods. Bowman (2006) has described some of these methods for estimating excess returns, such as unadjusted or adjusted models. One such model is the mean adjusted returns procedure which defines the “expected return as the mean of past security returns (defined over an arbitrary period)”. Regarding the means adjusted procedure Brown and Warner (1980) have found the model to be robust and in many cases performed as well or better than more sophisticated methods such as the risk adjusted methodologies. Nevertheless, the risk adjusted models have largely been developed out of the capital asset pricing model. The most popular of which is the “market model where the systemic risk parameter (beta) is equal to the slope coefficient in a time series regression of individual firm returns on the return on a market index” (Bowman, 2006). The market model is a statistical as opposed to economic model and it is argued by MacKinlay (1997) and Brown & Warner (1985) that statistical models and specifically the market model are the more reliable and powerful model in event studies. Therefore, I shall be implementing the market model where “the systemic risk parameter (beta) is equal to the slope coefficient in a time series regression of individual firm returns on a market index” (Bowman, 2006):

Where:

The parameters of the model are estimated using ordinary least squares regression and then used to calculate the residuals.

Which are assumed to have the properties,

As the expected value of the residuals is zero, any non-zero value of residuals is considered abnormal/excess returns.

### **5.1.3: Selecting the Index**

### In taking the market return from the observed return on the stock for each event we aim to minimise the variance of the abnormal return to incorporate only the effects of the announcement. In this way, the ability to isolate the effects of these events is dependent on the choice of a suitable benchmark (MacKinlay, 1997). Scholars such as MacKinlay (1997) and McWilliams & Siegel (1997) have argued for the use of wide-ranging stock index’s as they tend to better cover macro-economic factors that will affect all or most market participants. However, given that this thesis is focused on one industry, by selecting an industry focused index we are able to account for the macroeconomic factors that will effect all participants and also for the industry specific factors that are affecting the market. Indeed, Martynova and Renneboog (2008) have suggested to adjust for industry trends to better isolate the industry affecting factors. In doing so we aim to further minimise the variance of the AR, so increasing the ability to detect the effect of the event.

As such for this study I will be using the Morgan Stanley Capital International (MSCI) World Energy Index, which is the broadest industry specific index available from a high-quality source. Importantly, the index is dominated by companies who operate in the upstream sector, which is the area of the oil & as industry that I am focused on for aforementioned reasons. Another contributing reason to the selection is that it covers a large period, other potential index candidates such as the S&P 500 energy index are not only smaller in size but also data is available for a shorter time period (2007 as opposed to 2002 with MSCI) which allows us to expand our study and incorporate more event effects.

### **5.1.4: Defining the event window and the estimation period**

To conduct the event study we examine abnormal returns around an event window, the idea of which is to isolate the event to be able to determine its effect on the stock price. The event day is day 0 and for us is the day that information of the event first became publicly available. To further increase the accuracy of our event days we will be taking events where the rumour date and the announcement date were on the same day. The event window is the period in which the stock price of the firm will be analysed. This will be surrounding a 3 day event window of an alliance announcement, that is, plus + and minus - one day of the announcement, which is day 0. The justification for this being that in Ding, Lam and Cheng’s (2018) research they found that 83% of short term event windows adopted the standard window of -1, day 0, and day 1 as this is sufficient for capturing any leakages on day -1 and also adjustments on day 1. There is a trade off between capturing the effects of the event and the increased likelihood of capturing other events when expanding the event window. Further, Ding, Lam and Cheng (2018) also note that where the event window is to be expanded beyond the standard, there should be theoretical justifications for this, of which I do not have any. That being said, In addition I will run multiple alternate event windows of + - 3 days and + -10 days because King et al. (2004) note that the most common event windows fit inside the + - 10 day window. The reasoning for using multiple event windows relates to the trade-off between capturing more of the effect of the event and capturing effects from external events. Whilst it could be interesting to analyse shorter event windows, by using intra day rates, scholars such as MacKinley (1997) have argued that the significance increase is small and the overall benefits of doing this are not clear.

An estimation period must also be determined, that is the estimation period of normal returns based on the stock market index being used. Again there is a trade-off in this window by way of widening the estimation window for better statistical accuracy and the risk of shifting return-generating parameters (Strong, 1992). Additionally, an overlapping estimation period and event window will create bias and therefore should be avoided (MacKinlay, 1997). Therefore the estimation window will end the day before the widest event window, that is T-11. I will be using an estimation window of 90 days.

Based on the above, the timeline of our event study is illustrated below.

**Diagram

Description automatically generatedFigure 1.1 Event study timeline**

Where the event day is t=0, the event window is the period T1-T2 and the estimation window is the period T0 to T1.

Source: Authors own contribution

### **5.1.5: Statistical Tests – Parametric and Non-Parametric**

Usually event studies' abnormal and cumulative abnormal returns are employed in two ways. They are either employed as dependent variables in later regression analyses or they are interpreted as such. This later direct interpretation is to determine if the distribution of abnormal returns is systematically different from the expected distribution. The relevant literature is primarily concerned with the mean of the distribution of abnormal returns and, more precisely, if the mean is greater than zero (with statistical significance).

Hypothesis testing answers the question of statistical significance whereby the null hypotheses states that the mean of the abnormal returns (or CARs) is equal to zero. The alternative hypothesis states that the mean of the abnormal returns (or CARs) is not equal to zero:

Regarding the significance testing of the means of the returns we can turn to either parametric or non-parametric tests whereby parametric tests assume normally distributed data and non-parametric tests are free from these assumptions. Where data is not- normally distributed the use of non-parametric tests strengthens the robustness of the study. Brown and Warner (1985) have shown that abnormal returns tend to exhibit non-normality in their distribution. On the other hand, the mean abnormal returns in a cross section of securities tends to converge towards normality as the sample size increases (Brown and Warner, 1985). This is in line with the central limit theorem which states that as sample sizes increase the distribution of sample means tend to converge towards normality and that a sample size of 30 is usually sufficient to satisfy this condition. Based on the above, I will be running both a parametric test and to increase the robustness of the study a non-parametric test. This is in line with Mackinlay’s (1997) recommendation to use both a parametric test complemented by a non-parametric test when conducting event studies.

### **5.1.6: The Adjusted Patell Test**

A popular and powerful parametric test is the Pattell test (Kolari and Pynnonen, 2010) which is a cross sectional test that utilizes standardized abnormal returns and is easily applied to the testing of CARs over multiple event windows. Further, as the Pattell test is based on cumulated returns within an event window it does not matter how abnormal returns are scattered across the window. This means it does not suffer from shortcomings of some rank tests which in longer event windows are unable to capture the magnitude of returns, only their relative ranks (Kolari and Pynnonen, 2010). However, Kolari and Pynnonen (2010) have also proposed a modification of the Patell test to account for cross-correlation of the abnormal returns, known as the adjusted Patell where the test statistic for is given by:

The test statistic reduces the original Patell test statistic:

Where CSAR represents the cumulative standardized abnormal returns

With expectation zero and variance

### **5.1.7: The Wilcoxon Signed Rank Test**

As stated, to support and increase the robustness of the study we will be using a non-parametric test. The Wilcoxon signed rank test (Wilcoxon, 1945) analyses if there is a difference between two independent samples and is a non-parametric alternative T-test for dependent sample. The test is based on the sign of the CAR, that is whether it is positive + or negative -, with the assumption that the probability of observing positive and negative returns that are equal is 0.5. That is, under the null hypothesis the sum of the positive and negative ranks should be equal.

As stated earlier the traditional sign test is unable to detect the magnitude of the abnormal returns. However the Wilcoxon signed rank test is more powerful as it is able to test for the magnitude of the differences rather than just the signs. The test assigns each observation a rank based on the CAR, that is, the deviation from zero abnormal return.

Where we have more than 30 observations the Wilcoxon Signed Rank Test can be stated as follows:

Where the expected positive rank sum and the standard deviation are given as:

## **5.2: Firm/ Event Specific Cross-Sectional Regression**

### **5.2.1: Cross-Sectional Regression**

In order to bolster the testing of our hypotheses’ concerning the firm/ joint venture specific characteristics affect on wealth creation I will be conducting a cross-sectional regression analysis. The cross sectional regression with *i* number of variables is given as:

Where my dependent variable (Y) will be the CAR of the 3 day event window (-1, 1). Independent variables will be the firm/ joint venture specific characteristics afore discussed, expressed as dummy variables. These consist of:

1. Different Primary Industry; are the firms engaged in the joint venture operating in the same primary industry.
2. Domestic Joint venture; is the joint venture between domestic firms.
3. Large market cap; Does the firm have a large market capitalisation at the time of the deal.

The coefficient show the independent variables effect on Y and are estimated via the ordinary least squares (OLS) method. Thus, our model becomes:

The regression will allow us to determine how much of the overall valuation can be explained by the variables discussed and how much each independent variable effects the dependent variable and what the relationship is between this effect. In doing so we can better ascertain and bolster the analysis of our hypothesis and our further discussion of the empirical findings

### **5.2.2: Multicollinearity**

Multicollinearity concerns a situation where two or more variables in a model are correlated. In situations where multicollinearity exists, the model can still be used to predict the dependent variable however it will be unable to provide inferences on the effect of independent variables in the model. Multicollinearity can be determined via a correlation matrix. Correlations above 0.3 are considered to be correlated to some significant degree and will be commented on if they occur.

# **6: Data**

## **6.1: Data Selection Process**

The data on global joint venture announcements was obtained from Zephyr: Bureau Van Dijk database. The database has comprehensive coverage of information about joint ventures, M&A deals, IPO’s, Private equity and venture capital deals. Further, you can narrow down your searches using hundreds of different criteria and it allows for a number of variables, such as announcement and rumour dates to be included in the results list. It contains more details than similar deal databases and all of the data is verified against a primary source.

Regarding the stock market data, the historical prices of the sample companies were collected from Thompson Reuters Eikon. Thompson Rueters Eikon is a financial information service that among many other functions has comprehensive information on the likes of company historical prices and market news. Using Eikon has the benefit of allowing us to cross reference information obtained from Zephyr.

### **6.1.1: Zephyr Sample Selection Steps**

**Table 1: Zephyr Sample Selection Steps and Result**



*Source: Authors own contribution*

### **6.1.2: Deal Type**

As the study scope is limited to the effect that joint venture announcements have on the value of a firm only deals that are categorised as a joint-venture were selected.

### **6.1.3: US SIC**

The Standard Industrial Classification (SIC) is a system that classifies industries and among many other scholars Goergen and Renneboog (2004) have noted that a common prcatise when distinguishing industries is to use these SIC codes. As the study scope is limited to those firms in the upstream oil & Gas industry the search was limited to those company’s who’s primary US SIC code was either: 1311 - Crude petroleum and natural gas, 1321 – Natural gas liquids, 1381 – Drilling oil and gas wells, 1389 – Oil and gas field services, not elsewhere classified. 1311 & 1321 are the overarching US SIC codes for the upstream oil & gas industry but also by nature and as noted earlier in the thesis the drilling of oil and gas wells and oil and gas field services belong to the oil and gas upstream. I chose to limit this to where both the company engaging in the joint venture and the joint venture being created belong to one of these codes as doing so will ensure that our sample is homogeneously focused on the oil and gas upstream.

### **6.1.4: Listed Acquirer**

As the thesis is an event study focused on stock market returns, the acquiring company must be listed on at least one stock market. The target, that is the Joint Venture itself, even if listed will not have historical price performances to analyse and nor are they of concern when we are looking at the value joint venture announcements have on the incumbent company. As such, only deals where there was at least one listed acquirer were selected.

### **6.1.5: Current Deal Status**

It was chosen that the status of the deals would be competed, that is either assumed to be completed or assumed to be completed. Firstly, where a company itself has announced a joint venture, not only is this the only primary source but this announcement also almost always makes the deal be at least assumed if not confirmed to be completed.

### **6.1.6: Time Period**

There were two constraints to the selection of the time period. First, the MSCI world energy index data did not go back further than the 24/04/2002 and as such all deals were selected to be past this date in order for us to have a benchmark index. Next, the 31/12/2021 was chosen because this was the most recent full trading year.

## **6.2: Excel Sample Selection Steps**

**Table 2: Excel Sample Selection Steps and Result**

*Source: Authors own contribution*

### **6.2.1: Exclusion of Rumour date ≠ Announcement date**

One problem that event studies have is the determination of the correct event say, partly because there are leakages and the stock market reaction often does not fall directly on the assumed event 0 day. One way we are better able to determine the correct event date is to only take deals where the rumour date was the same as the announcement date. The Zephyr download features both the rumour and announcement date, making it easy to determine. Nevertheless, this was cross checked with the same news announcement on Reuters and where the dates coincided with Zephyr rumour and announcement dates they were kept as part of the sample.

### **6.2.2: Exclusion of non-trading days**

Events that took place on non-trading days were also excluded. Where an event was to take place on non-trading days it is difficult to determine the proper event window because the market adjustment takes place in a smaller event window. For example, were an event/ announcement to occur on a Sunday, information will still be disseminated in the same way as on regular trading days but then this would not be consistently reflected in our -1 +1 event window when compared to events taking place on trading days. As such, events taking place on non-trading days are to be excluded.

### **6.2.3: Exclusion of deals pre 24/04/2002**

As stated earlier, information on the MSCI is only available on Thompson Rueters database from 24/04/2022. To be able to model our returns we need a benchmark index for the market return. Therefore, we are unable to include events that took place before we have any benchmark returns for. As such, all deals occurring before 24/04/2002 were excluded. Despite making this a criteria in Zephyr, there were still a number of deals included where the announcement/ rumour date occurred before 2/04/2022.

### **6.2.4: Exclusion of Overlapping Events**

We have event windows is to capture any leakages from the event, however there is a trade off between capturing leakages from the event and capturing other events by expanding the event window. In this way Ding. Lam, Cheng (2018) found that 83% of short term event windows adopted the standard window of -1, day 0, and day 1. Following on from this, where we are aware of any events occurring in tandem with our event window, we would expect them to be captured in the stock market returns of our window. If this were to happen then we will not have isolated our event and a portion of the abnormal returns would be able to be explained by the event not of concern. Therefore, all overlapping events effecting the company should be excluded. This is done by cross checking any corporate announcements made by the company surrounding the event date on Thompson Rueters. Any corporate announcement, such as earnings statements or any other significant deals such as an M&A deal were excluded. The criteria for this were external events + - 11 days around T0, this is our largest window for capturing effects of the event and by applying the same reasoning, these events should be excluded.

### **6.2.5: Exclusion of Thinly Traded Stocks**

Thinly traded stocks are those which cannot be easily traded, either due to low volume of trading due to a limited number of buyers and sellers or because they are traded on illiquid exchanges. The can be properly defined as those that trade on less than 40% of potential trading days (Bartheoldy et al, 2003) The result is that where there are trades in the stock the price fluctuations are more volatile then more liquid stocks. This price volatility makes thinly traded stocks much more likely to skew the results as the effect size on trading days will be far more significant if we were to incorporate them into our sample and us such they are excluded. Given the definition, those excluded are those that trade on less than 40% of trading days.

### **6.2.6: Exclusion of Missing Historical Prices or Market Capitalisations**

A large number (41) of observations from Zephyr did not have the necessary historical financial data available on Thompson Reuters. There were a number of reasons for this such as the company not being listed at the time of the event (which I assume bypasses the Zephyr listed criteria), the data was simply not available in Reuters. These deals were excluded from the sample.

### **6.2.7: Exclusion of Outliers**

Finally, the remaining sample was screened for outliers using a combination of a box plot and a scatter plot. Where observations were deemed to deviate too far from the mean they were removed. A total of 6 observations were removed leaving us with 78 observations overall.

# **7: Empirical Findings**

## **7.1: Cumulative Average Abnormal Returns**

### **7.1.1: Overall Value Creation**

Table 1 shows the abnormal returns calculated for the 3 different event windows for the whole sample. It can be seen from table 1 that abnormal returns were positive when Joint Ventures were announced, with all three windows being significantly different from 0. The announcement effects for the 3-day, 7-day and 11-day CAARs were 1.8%, 1.74% and 1.92% respectively. The 3-day event window is significant at the 1% level, the 7-day event window at the 10% level and the 11-day event window is insignificant.

Overall, the strongest effect was for the 3-day event window at 1.8% and all observations show positive CAAR. This effect supports hypothesis 1, that Joint venture announcements from upstream oil & gas firms will create positive abnormal returns. Thus, we reject the null that Joint Venture announcements do not create positive abnormal returns.

**Table 3: CAARs of the whole sample over Different Event Windows$**

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Notes: \*\*\* p-values < 0.01, \*\* p-values < 0.05, \* p-values < 0.1

Event study with 3 event windows specified, using the Patell test, with the Kolari and Pynnonen adjustment

*Source: Authors own contribution*

## **7.1.2: International and Domestic Joint Ventures**

Table 2 shows the abnormal returns calculated for the 3 different event windows for two groups, international joint ventures and domestic joint ventures. International Joint ventures are considered joint ventures between companies headquartered in different countries. Domestic are joint ventures between firms of the same country. Overall, It can be seen from table 2 that returns were positive for both groups when joint ventures were announced. When comparing the two groups, International JVs has CAAR’s of 1.43%, 1.38% and 1.02% for the 3 day, 7 day and 11 day event windows respectively. The 3-day event window was significant at the 10% level, the 7-day and the 11-day event windows are not significant.

Domestic JVs has CAR’s of 2.53%%, 2.41% and 3.43% for the 3 day, 7 day and 11 day event windows respectively. The 3 day event window is significant at the 1% level, the 7 and 11-day event windows are insignificant.

The results show that the stock market rewards Joint venture announcements between domestic firms more than Joint ventures between international firms. For example, for the 3-day event window group 1 experienced 1.43% positive CAAR whereases group 2 experienced positive CAAR of 2.53%, a difference of 1.1%. Therefore, we are able to accept hypothesis 3: Abnormal returns attributable to domestic joint ventures create greater value than domestic joint ventures.

**Table 4: CAARs of International JVs vs Domestic JV’s**



Notes: \*\*\* p-values < 0.01, \*\* p-values < 0.05, \* p-values < 0.1

Event study with 3 event windows specified, using the Patell test, with the Kolari and Pynnonen adjustment

*Source: Authors own contribution*

## **7.1.3: Joint Ventures Between Firms With Different Primary Industries**

Table 3 shows the abnormal returns calculated for the 3 different event windows for two groups, Joint ventures between companies who are in the same primary industry and companies who are in different primary industries. Overall, it can be seen from table 3 that returns were positive for both groups when joint ventures were announced.

When comparing the two groups, Same Primary Industry group has CAARs of 2%, 2.15%, 2.9% for the 3 day, 7 day and 11 day event windows respectively. The 3 day event window is significant at the 1% level, the 7-day event window at the 10% level and the 11-day event window is insignificant. The different primary industry group has CAARs of 1.62%, 1.34% and 0.99% for the 3 day, 7 day and 11 day event windows respectively. The 3 day event window was significant at the 10% level, the 7-day and the 11-day event windows are insignificant.

The results show that the stock market rewards Joint venture announcements between firms with the same primary industry more than joint ventures between firms with different primary industries. For example, for the 3 day event window companies in the same primary industry experienced 2% positive CAAR whereases group 2 experienced positive CAAR of 1.62%, a difference of 0.37%. Therefore, cannot accept hypothesis 2, that abnormal returns attributable to companies with different primary industries/ activities create greater value than joint ventures between companies with the same primary industry.

**Table 5: CAARs of JVs between companies with same primary industry v different primary industry**

****

Notes: \*\*\* p-values < 0.01, \*\* p-values < 0.05, \* p-values < 0.1

Event study with 3 event windows specified, using the Patell test, with the Kolari and Pynnonen adjustment

*Source: Authors own contribution*

### **7.1.4: Firm Size**

Table 4 shows the abnormal returns calculated for the 3 different event windows for two groups, Joint ventures announcements from companies with large market capitalisations at the time of the announcement and joint venture announcements from companies without large size market capitalisations at the time of announcement (all were medium sized). Overall, it can be seen from table 4 that returns were positive for both groups when joint ventures were announced.

When comparing the two groups, group 1 Large Market Cap group has CAARs of 1.58%, 1.05% and 0.8% for the 3 day, 7 day and 11 day event window respectively. The 3 day event window was significant at the 1% level, the 7 day event window and the 11 day event windows were insignificant. The Non large market Cap group had CAAR’s of 2%, 2.26% and 2.32% for the 3 day, 7 day and 11 day event windows respectively however all were insignificant.

The results show that the stock market rewards joint venture announcements of large cap firms however where all the result are insignificant for the mid cap groups we are unable to accept Hypothesis 4: Abnormal returns attributable to firms with non-large sized market capitalisations create greater value than firms with large market capitalisations.

**Table 6: CAARs of JVs Between Large Cap Vs Mid Cap Companies**

****

Notes: \*\*\* p-values < 0.01, \*\* p-values < 0.05, \* p-values < 0.1

Event study with 3 event windows specified, using the Patell test, with the Kolari and Pynnonen adjustment

*Source: Authors own contribution*

## **7.2: Cross-Sectional Analysis**

Regarding the cross-sectional analysis, the relationship between the stock market reaction to joint venture announcements, that is the CARs and the firm and deal specific characteristics are analysed in a regression. The dependent variable is the 3 day (-1, 1) event window CAR and the independent variables are ‘Domestic Joint Venture’, ‘Different Primary Industry’, ‘Large Market Cap’.

Overall, the model shows that 11.7% of the CAR, that is the overall value creation from a joint venture announcement, can be explained by our three independent variables, significant at the 5% level. Regarding the specific variables, is not significant. is significant at the 5% level. This shows that on average, CAR increases by 5% when the firms engaging in the joint venture are in domestic joint ventures, all else being equal. This is consistent with the acceptance of hypothesis 3. is significant at the 1% level and increased by 4.6% when firms have a large market capitalisation, all else being equal. This is in line with the acceptance of hypothesis 4, that abnormal returns attributable to companies in the same primary industries create greater value than joint ventures between companies with the different primary industry. The relationship between the findings concerning the primary industry of firms in the regression and the CAR’s in the previous section will be discussed in the following section.

The effects of being an joint venture between firms of different primary industries is insignificant. Therefore, I find no evidence to further bolster or contradict the findings made in the previous section regarding Hypothesis 2, that abnormal returns attributable to firms in different primary industries create greater value than joint ventures of firms in the same primary industry. This will be discussed in the following section.

**Table 7: Cross-sectional regression output**

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Notes: \*\*\* p-values < 0.01, \*\* p-values < 0.05, \* p-values < 0.1

*Source: Authors own contribution*

# **8: Discussion**

## **8.1: Overall Value Creation**

The share price reflects the perception of the present value of a firm from investors, which are determined by the expectation of the firms future cash flows. The results of the analysis indicate that when firms in the oil and gas upstream sector makes an investment into the creation of a joint venture, the sharing of resources and capabilities creates competitive advantages. Where investors believe that the joint venture will create sustained economic value, this translates into the 1.8% CAAR surrounding the 3-day event window. The magnitude of this change is also large, with a CAAR of around 0.88% for US joint venture announcements.(McConnell and Nantell, 1985; Keown et al., 2005).

Overall, this is in line with what we expected. The Oil & Gas upstream sector is characterised by innovation intensive and complex projects such as floating LNG fields. Joint ventures provide a way for firms to conserve resources, access complimentary resources, share risks and improve technological capabilities. The aforementioned are valuable considerations for such innovative, complex and resource heavy projects and therefore we expect joint ventures to be interpreted as adding value to firms. The nuance of the discussion centres more around the firm and deal specific characteristics.

## **8.2: Primary Industry**

In relation to our hypothesis 2, we failed to accept the hypothesis that abnormal returns attributable to companies with different primary industries/ activities create greater value than joint ventures between companies with the same primary industry/ activity. Joint ventures between firms from the same primary industry saw more significant CAARs than those between firms of different industries by a difference of 0.38%. This suggests that investors perceive joint ventures between firms in the same primary industry as creating more value. Regarding our cross-sectional regression, where the variable was insignificant, we were unable to draw further conclusions about this hypothesis from our own study.

Therefore, based on the higher CAARs of firms in the same primary industry we can infer that the transfer of resources is more valuable than the transfer of resources in different primary industries. Both statements and empirical evidence led us to hypothesise that information asymmetries will lead to joint ventures creating more value where oil and gas firms exist in different primary industries. For example, Reur and Koza’s (2000) results showing that usually a greater amount of shareholder value is created in joint ventures where asymmetric information exists between the two parent firms. However, it appears the argumentation about asymmetries are more nuanced in the oil and gas sector by interpreting this as a need to distinguish at the industry level may have been an overestimation. Firstly, many oil and gas firms have secondary industries which overlap, especially large companies who have fully integrated supply chains, meaning that the information asymmetry effect may be less pronounced. Further, we know from the review of the oil and gas industry that international oil companies are positioning themselves and their capabilities in different ways, such as Shell in LNG and BP in deep water. Nevertheless, they still exist in the same primary industries. Therefore, when embarking on joint ventures, firms in the same primary industries are able to partner on technically challenging projects where each has leadership in complimentary capabilities. Whilst companies often have successful capabilities in several challenging arenas, normally they do not have successful capabilities and competitive advantages in all.

Moreover, where two parent companies have the same primary functions, opportunities for economies of scope arise whereby there is an ability to transfer resources and capabilities across the value chain. Merchant & Schendel (2000) have noted how this can generate superior insights and competitive advantages.

## **8.3: Firm Size**

Regarding firm size. We were able to determine that joint ventures from firms with large market capitalisations saw CAARs of 1.58%. However, where we did not obtain significant results for firms without a large market capitalisation we were unable to accept hypothesis 4, that Abnormal returns attributable to firms with non-large sized market capitalisations create greater value than firms with large sized market capitalisations. Not only this but the cross-sectional regression found that firms with large market capitalisations explained of CAARS 4.46%, significant at the 5% level. Given that this effect is quite large we can discuss the impact large market capitalisations have further.

In the literature review I emphasised how smaller firms often possess tacit knowledge desired by larger firms. This knowledge could increase the smaller partner’s bargaining power and ability to capture value from the joint venture (Das et al., 1998). The resulting presupposition was that smaller firms would see superior CAARS. However, we have noted how the oil & gas upstream competitive forces means that firms gain competitive advantages by investing in resource intensive and technologically demanding projects to explore reserves that have previously been considered too expensive or difficult to access. For example, ultra-Deepwater extraction, extraction in the arctic, liquified natural gas, shale extraction and floating LNG fields. In this way, the positive CAARS that large cap firms experience is likely to be the nature of the industry, whereby the resources required to gain competitive advantages in the industry are so costly that they are better accessed by large cap firms. For example, knowledge is supposed as one of the most important resources, however the knowledge and capabilities involved in running complex projects can only be developed by running these projects in the first place, perhaps creating high barriers to entry for smaller sized firms to gain specialised knowledge in these areas.

## **8.4: Domestic Joint Ventures**

Regarding joint ventures between parent firms of two or more from the same country. From the analysis of their CAARs we were able to determine that domestic joint ventures saw higher CAARs than joint ventures between firms of international parent companies, with a difference of 1.1%.

Nevertheless, In the literature review we note that Many upstream oil & gas companies exist in what can be considered riskier markets to operate in, with different political and economic structures to that of the oil & gas supermajors, such as in Russia & China and because of this a large number of upstream joint ventures exists between at least one western company and a company who originates from one of these markets. Further, many of our international joint ventures saw joint ventures in regions where these considerations are amplified, for example many were in Russia. Where the transfer of resources and capabilities hypothetically should not be significantly different, our findings go some way to suggest that investors perceive the political and economic risks associated with cross border deals to be significant enough to reduce the CAAR to some extent.

Instead, where domestic deals generate higher CAARs it can also be stipulated that the transfer of resources is greater. Many oil & gas firms are dependent on sustaining their reserves bases and this is increasingly done cross borders where domestic reserves are depleting. As such, many international joint ventures are in order to increase oil reserves, however, this is very much becoming a part of normal business operations. Instead, those joint ventures that remain domestic may be more of a transfer of resources such as knowledge along the value chain, which in turn crates more sustained competitive advantages when compared to reserve expansion, which can be considered a normal part of business operations.

# **9: Implications**

## **9.1: Managerial Implications – JV’s as a Strategic Tool For Growth**

Where not all of our CARs were positive, we are unable to claim that joint ventures create value. Nevertheless, the study has found evidence for value creation. The magnitude of this change is also large, with a CAAR of around 0.88% for US joint venture announcements. (McConnell and Nantell, 1985; Keown et al., 2005). This suggests that oil & gas firms are operating in an industry that sees disproportionally large benefits from the transfer of resources. This is significant because the green transition is making the challenges of complex extraction even more complex owing to high levels of environmental scrutiny. As such, managers are able to turn to the findings in this paper to help answer questions of whether or to joint ventures in the upstream are still able to add enough value to the firm to make the project viable. Following on from this, when looking for new growth opportunities it would be prudent for managers to explore opportunities of potential joint ventures within the oil and gas upstream.

Indeed, Joint ventures can be used as strategic tools for growth and based on our study there are implications about this growth. We have inferred that partnering with firms that operate in the same primary industry is likely to create superior returns than when partnering with firms firm different primary industries. The implications of which are that when managers are considering joint ventures they should avoid doing so in the interest of diversification. Instead, joint ventures should be focused on partnering with firms who can provide complimentary, complex capabilities about the nuances of operating in the firms own industry rather than with firms who bring a high level of asymmetric information. Indeed, going forward, as Garcia et al. (2014) note, it will be the complex dynamic capabilities that will be the key drivers of value in the industry.

An alternative strategic tool for growth is the option of M&A. However, the transfer of resources in M&A tend to be less dynamic and more static. For example, they can be measured in terms of direct oil reserve or technological equipment acquisition. In this sense, I would urge managers to first consider Joint ventures as a strategic tool for growth given that the industry is going to be continuously characterized by extraction of oil & gas in extremely difficult environments to operate in, which will require dynamic, complex capabilities. Indeed, this is the reason we are seeing different international oil and gas companies position themselves in certain areas for growth. Such as BP in Deepwater and Shell in LNG. As discussed, when appropriate, Joint ventures are an ideal way to share the nuances of these capabilities that compliment each other in this sector.

Additionally, when considering the structure of the joint venture managers should not necessarily be looking at creating value out of asymmetric information that exists between firms and instead be concerned with economies of scope, whereby resources and knowledge transfer occurs across the value chain. In doing so, managers are able to increase the efficiency of their firms portfolio of assets, something we know is key in the oil & gas sector due to firms lack of power over oil & gas prices and lack of leverage in easy to extract countries and regions.

## **9.2: Theoretical Implications**

Vijay and Umesh (2021) have noted how viewing strategic alliances such as joint ventures from a Resource Based/ Knowledge Based view perspective is still very much current. Further, based on their research the Oil & Gas industry is a good industry to focus on as it is an innovation intensive industry and the RBV iterative is lacking in this area. In this way the study makes a meaningful contribution to the RBV literature.

From our research we have been able to infer that in innovation intensive industries, a more valuable transfer of resources occurs when firms develop economies of scope along the value chain. Rather than combining resources to mitigate against information asymmetries, firms should not look at diversification and instead engage in a greater consistency of effort and a higher degree of focus on developing dynamic complex capabilities surrounding the innovations.

Responding to critiques of RBV that the theories applicability is limited, Barney (2001, 2002, 2008) has responded that the theory holds provided that an industry is somewhat stable in the sense that its environment is not unpredictable, where if new technologies emerge the value we place on resources and their contribution to sustainable competitive advantages does not drastically change. Given that the industry and the majority of my results have been able to be explained and justified via the resource-based view perspective, my findings go some way in providing evidence that the theory holds even where the industry is not completely stable and where new technologies emerge that alter the value we place on resources.

For example, the oil & gas industry is subject to many price collapses and a unique feature is that oil and gas companies have little control over these prices, which often destabilases the industry. Further, new technologies are continuously developed that can dramatically shift the landscape in terms of the value of resources. For example, where extraction in extreme environment is suddenly made possible by a new technology, suddenly the reserves in this region have value where before there was little. Moreover, the industry has been in constant state of change in recent years with the green transition and where companies such as BP are committing to net zero. Nevertheless, the research has not been limited by these factors. Instead, I argue that RBV arguments, particularly those surrounding the need for dynamic, complex capabilities to create competitive advantages, rather than being limited by criticisms of inapplicability to a somewhat unstable industry where new technologies have large impacts, they have been able to uphold and extend the resource-based views theoretical applications.

# **10: Limitations**

I believe the most limiting part of the study was the cross-sectional regression. The cross-sectional analysis was only able to explain 11.7% of the CARs, which is somewhat of a limitation as it makes it harder to draw inferences and suggests that there are potentially more important contributing factors. One reason for this may be the way in which the variables were defined. For example, international joint ventures were defined as joint ventures between parent companies in different countries, given the previous discussion about fiscal considerations it may have been more nuanced to consider joint ventures between firms in different regions. Furthermore, when looking at the industry the firm was operating in I only used the four digit primary SIC code. This variable was concerned with degrees of business relatedness based on hypothesis about information asymmetries. However, many of the oil and gas firms operate quite extensively in related secondary industries and also despite having the same primary SIC’s, have very different business descriptions. For this particular variable it would have been good to incorporate secondary SIC’s however there were simply too many to do some kind of a meaningful analysis and also keep the study direct.

Another point on the cross-sectional regression is the lack of control variables. they are included in regression analysis to determine the effect other potential variables have on the dependent variable, in our case the overall value creation. Hunermund and Louw (2020) note how the estimated effect sizes of control variables are unlikely to have a causal effect on the interpretation, often leading to false intuitions where scholars overstate the role of control variables in regressions. Nevertheless, the inclusion of control variables would likely have been able to help me explain more of the CAARs. The issue was what control variables to include. There was a distinct lack of information on certain control variables that I wanted to include such as the value of the joint venture. Had this been a study on M&A deals this kind of information would have been more publicly available and easier to include.

Another limitation is the fact that I was not able to analyse many firms that engage in joint ventures. Many of joint ventures occur between private, or state run companies for which there is not the stock data to conduct an event study. This is frustrating because the nature of these firms means that we can assume they bring different resources and capabilities which could then be analysed via RBV. For example, National oil corporations often partner with international corporations, whereby the International corporation provides technical resources and knowledge and the national corporation in turn takes responsibility for the development of the local and politico-economic and fiscal ecosystem. Likewise, we found that large market ca firms provide positive CARS but where unable to specify about smaller cap firms, which is frustrating because I hypothesized that the specialised and tacit knowledge that small firms have would have been a significant resource. Had private firms more price data available perhaps I would have been able to draw concrete conclusions on this.

Another limitation of the study relates to the sample data that was collected. Zephyr gives the ability to filter by date and rumour plus announcement date. Whilst this is a great feature there were a number of results returned that fell outside of the specified filters, such as outside the date range. Additionally, there were a number of observations where the dates on Zephyr did not match the corresponding dates from Thompson Reuters Eikon. Whilst I did my best to filter the information there is still the possibility that the sample contains unwanted information.

One final limitation relates to not having the target business description, including things such as shale and LNG floating gas fields and arctic Deepwater fields would have made it possible to further explore if technical projects provide more value than non-technical ones and infer about resource transfer and dynamic capabilities from this.

# **11: Conclusions and Future Research**

The paper sought to cover a gap in the literature of the resource-based view on two fronts.

First, as Vijay Pereira and Umesh Bamel, (2021) note, the field of innovation had a lesser degree of maturity in the literature. Among other reasons, this is why we chose to focus on Oil & Gas. Following on from this, Joint ventures had been analysed from the RBV perspective in the Oil & gas industry from the likes of Garcia et al (201) but complementary empirical analysis was lacking to assess the implications and key value drivers.

Overall we were able to accept two of our four hypotheses and affirmed that joint ventures create value for Oil & gas firms. However, the nuance of the discussion centred more around the firm and deal specific characteristics and the inferences that can be made about capabilities through analysing these. We were able to determine that domestic joint ventures, and joint ventures between firms in the same primary industry were more valuable than international joint ventures and joint ventures from firms in different industries. The key implication for RBV we were able to infer from this relates firms having the same primary industry. Where managers in a technologically advanced and overall complex industry like oil & gas are looking to using joint ventures as strategic tools for growth, they should not be focusing on notable information asymmetries or diversification. Instead they should be focused on partnering with firms who can provide complimentary, complex capabilities about the nuances of operating in the firms own industry.

Regarding the Implications for RBV, previous crticisims levied against it claim it is only workable in an industry that is somewhat stable in the sense that its environment is not unpredictable. Oil & gas upstream is one such industry. Instead, RBV arguments were able to logically apply to our empirical review of the industry and our subsequent research findings. This was particularly true when advancing RBV arguments surrounding the need for dynamic, complex capabilities.

Going forward, it would be useful to expand the study in two ways. First, by incorporating the target firms business descriptions to gain an understanding of what business activities are driving growth, where I hypothesis that complex activities such as Deepwater and Arctic exploration targets will add most value to parent firms for the many reasons aforementioned in this paper. Second, I believe that the study should be expanded with more control variables in order to attain a model that is able to explain a greater amount of the overall value creation, rather than the 11.7% attained in this study. Some key metrics that this author was unable to attain was the value of the joint venture and joint venture experience, both of which have RBV implications. When looking to expand and compare the industry, the research could tie in more closely to the energy transition. Not only are companies such as BP committing to net carbon zero but where the energy transition will also require complex technologies it could be compared and contrasted with this study. Indeed, Fane (2021) notes how there are “good questions about the fit between oil company competencies and success factors in the… renewable energy sector”.

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Appendix

Appendix A: MSCI World Energy Index

Chart, application

Description automatically generated with medium confidence

Chart

Description automatically generated

Appendix B: Normality Tests – SPSS Output

Chart, histogram

Description automatically generated

Table

Description automatically generated

Appendix C: Overall Value Creation – Stata Output

Graphical user interface, text, application

Description automatically generated

Appendix D: Same Primary Industry – Stata Output

**Graphical user interface, application

Description automatically generated**

Appendix E: Firm Size – Stata Output

**Graphical user interface, text

Description automatically generated**

Appendix F: International Joint Ventures – State Output

Graphical user interface, application

Description automatically generated

Appendix G: Cross Sectional Regression – SPSS Output

Graphical user interface, application, Word

Description automatically generated

Appendix H: Multicollinearity, Correlation Matrix – SPSS Output

**Table

Description automatically generated**