# *CROSS-BORDER OIL AND GAS MERGERS AND ACQUISITIONS TRANSACTIONS AND ITS GEOGRAPHY-BASED COMPREHENSIVE OVERVIEW*

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## 1 Overview

The oil and gas industry has a dynamic and changing structure which is driven by factors such as technological innovations, volatile commodity prices, competitive challenges in the international markets, energy policies, politics and macroeconomic instabilities. Add to that, over the past decades, the industry has experienced its own transformation due to technological advancements, particularly in exploration and production, changing supply-demand balance between exporting-importing countries and developed-developing countries (Hsu et al., 2017; Reddy and Xie 2017). As one consequence, strategic investments in the sector, such as vertical-horizontal integrations, mergers and acquisitions (M&As) and cross-border M&As become more attractive and challenging due to highly competitive markets, concern about security of energy demand and supply by nations and technical niche. For instance, oil and gas domestic and cross-border M&A activity show an increasing trend and high numbers of notable transactions. Moreover, oil and gas markets and international energy markets in general become complex and face with uncertainty. In that line, sufficient and continuous investments are essential, especially the cross-border M&As, and the investments will certainly impact the future oil and gas business and world economy.

This paper aims to gather a comprehensive view of cross-border M&As in the oil and gas industry based on empirical analyses in M&A transactions in terms of number of deals, deal volumes, geographical patterns and the interaction between relevant M&A theories, e.g. transaction cost, property rights, resource-based theory and sector insights. Given the importance of oil and gas industry in the global economy, it is needful to identify the directions of oil and gas M&As, explore the challenges of cross-border M&A transactions and explain the driving forces of such investments as one of the most preferred strategy, (Abdullayeva, 2015). To the best of our knowledge, there barely exist academic reviews of cross-border M&A transactions, focusing on a specific sector and sectoral impacts on such investments, particularly M&A studies on extracting industries and oil and gas are rare (Hsu et al., 2017). However, a sector-specific analyses of cross-border M&A investments are essential in order to provide a better understanding of motivating sector-specific facts and indicating the differences across sectors (if any). For instance, based on empirical studies across different sectors such as automotive, metal and mining, oil and gas, telecommunication and pharmaceuticals, Kang and Johansson (2000) show differences on the driving forces of cross-border M&As and reveal the interaction between industrial attributions and M&As. To fill the gap in the academic literature on cross-border oil and gas M&A investments and its topical issues, a theoretical review of cross-border oil and gas M&A investments and challenges of the oil and gas industry`s fundamentals is offered by this study.

Previous studies in the business, finance or economics literature focused mainly on M&As in general and thus has overlooked the unique challenges of cross-border M&A transactions over the decades (Shimizu et al., 2004). Even though the dynamics of cross-border M&As are similar to domestic ones, there are still certain challenges due to their nature of involving two or more countries and different cultural, economic, institutional and regulatory structures (Shimizu et al., 2004). In that line, oil and gas M&A investments are even more challenging since they are mostly overseas investments and also world`s resources and proven reserves are unequally allocated and firms need advanced technologies for their exploration and production activities or bound to invest in exploration and production to secure their future existence in the market and secure their replacement of reserves. Therefore, cross-border oil and gas M&As are mostly preferred over domestic investments since it led firms to access the resources or certain technological advancements. These investments can be impacted by factors such as regulatory changes in target (host) countries, energy policies, any kind of financial and political uncertainties, sector-specific factors (e.g. oil and natural gas prices, reserves and production levels) and also other sectoral changes which can hamper investments. To date, the existing research with a particular focus both on the oil and gas industry and cross-border oil and gas M&As has not fully covered above mentioned issues. On one hand, the studies mainly covered US, UK, Canada, China and Norway or Gulf Countries and OPEC[1] countries oil and gas data sets. On the

1 Organization of the Petroleum Exportin Countries (https://www.opec.org/opec_web/en)

other hand, these previous studies, mostly analyzed the relationship between energy prices, volatility of oil prices and M&A activity or the relationship between M&A and stock return, heterogeneities of enterprise characteristics. Moreover, most recently, the determinants of upstream oil and gas M&As in US and Canada or the factors which affect the decision-making processes of M&A investments by (Ng and Donker, 2013; Hsu et al., 2017). One reason is to analyze major players of oil and gas industry, another reason is the availability of the data for an empirical work on this issue. Moreover, theories and methodologies in M&A and cross-border M&A research field focus on different perspectives, such as organizational, network or boundaries of economics, do not directly focus to motivation of cross-border M&As or underlying drivers of such investments based on theory and sectoral-impact (Wu et al., 2017).

Different than the previous studies, this study analyzes a global cross-border oil and gas M&As data set from 2000 to 2018. Despite of a similar motivation and objective to studies of Reddy and Xie (2017); set up of the study, data set, major focus and results in this paper are different and complementary to their study. First, the analyses of oil and gas M&As data set is based on a sophisticated and more granular oil and gas M&As data, i.e. data are compiled from global leading source of information providers such as IHS Markit, Wood Mackenzie and Global Data. Second, different than aforementioned study, it reviews certain M&As literature, the underlying sector-specific motivating facts of cross-border oil and gas M&As as well as the role of a target (host) country in cross-border M&A transactions. Third, the expected determinants of cross-border oil and gas M&As are discussed by leveraging sectoral insights, prior findings in the cross-border M&A literature. Fourth and related to all above, it illustrates an overview of top acquirer (buyer) and top target (host) countries and analyze the target countries' indicators based on economic, institutional and regulatory structures and look for sector-specific indicators as a key facts of cross-border oil and gas M&As. Moreover, the paper discusses incentives to invest in different segments, e.g. exploration and production (upstream), refining and marketing (downstream) of the industry. A major reason for adding the discussion through incentives of upstream and downstream investments is that beyond the theoretical issues of cross-border M&As, to address the sectoral trends and movements in M&As. In particular, (i) we highlight which target countries receive the most investments? (ii) why are some target (host) countries more attractive/or less attractive compared to others? (i.e. discussion through country-specific factors, risks) (iii) what are the common patterns and differences of cross-border M&As i.e. the oil and gas industry versus M&A in general. Finally, our survey paper presents a broader evidence which supports the on-going discussions through cross-border oil and gas M&As and accomplish to object critical facets of the industry. Overall, the paper enlarges our knowledge of the cross-border oil and gas M&A transactions, reviews the important theories in relevant research fields in order to create an integrated framework of cross-border oil and gas M&As, contributes to the energy policy, energy economics, energy strategy and extant cross-border M&A literature.

## 2 Methods

We follow a narrative approach, summarize and integrate prior findings, which are most related to our chosen topic in oil and gas cross-border M&A investments and develop a new integrated framework (Xie et al., 2017). Therefore, we survey the extant research on determinants of cross-border M&A investments, motivation of M&A investments, cross-border M&A transactions, domestic and cross-border M&As, theoretical explanations of cross-border M&As, oil and gas M&As, cross-border oil and gas investments, M&As in the energy sector and downstream-upstream investments. To this end, we collect some good review articles on M&As and cross-border M&As, such as Rossi and Volpin (2004), Shimizu et al. (2004), Chakrabarti et al. (2009), Lafontaine and Slade (2007) and an exploratory research of Xie et al. (2017). Furthermore, the most recent studies which are related to natural resources, investments, cross-border oil and gas M&As or M&As in the energy sector and similar are surveyed, e.g. Wirl and Ghoddusi (2018), Reddy and Xie (2017), Hsu et al. (2017), Ng and Donker (2013), Abdullayeva (2015) and Bos et al. (2018). Regarding data, M&A transactions deal data used in this paper is compiled from a global leading source of information provider, IHS Markit (Connect)[2]. The first motivating fact to choose this database is that it offers analyses and has a special focus and expertises on energy and natural resources and on the oil and gas industry. Particularly, it covers different segments of the industry, e.g. upstream (exploration and production), downstream (refining and marketing) and others and provide us an optional view of those segments)[3]. Second, it provides large sample size of oil and gas M&A transactions over the last decades, investment reports, global market updates and current trends in oil and gas M&As which could support us to gain sector insights. Moreover, the transaction database contains supportive and detailed information on the deals, e.g. deal type, deal level, buyer, seller, industry, buyer headquarter, primary country, announcement date, deal value, deal summary which led us to illustrate a view of oil and gas M&As with several states e.g. target country vs. buyer country, number of deals in the upstream segment vs. downstream segment. Third, the acquirer and target firms are both from oil and gas industry that it discloses a homogeneous interactions between parties within the same sector in terms of a legal transaction. Furthermore, different than databases used in previous studies (e.g. Reddy and Xie,

[2] IHS Markit (Connect), 2019. (https://ihsmarkit.com/about/index.html, https://connect.ihs.com/home)

[3] The oil and gas industry divided into four categories such as upstream, downstream, midstream, integrated oil and gas and oilfield services and equipments, IHS Markit (Connect), 2019.

2017; Bos et. al., 2018) the transaction database contains both asset and corporate deal levels[4] and different deal types, e.g. mergers, acquisitions, joint partnerships, acquisitions/farm in and similar which extends the types of observations in oil and gas transactions. Moreover, the data according to sector-specific insights, geography-based overviews, country-level, macroeconomic-level and similar key indicators are compiled from world investments reports and energy databases, e.g. Global Data, Wood Mackenzie, International Energy Agency, UNICTADStat or World Bank database. Finally, the paper analyzes oil and gas M&A transactions, 23.802 observations, between 01/01/2000 and 31/12/2018 and it offers analyses based on a sub-sample of 4.678 observations in cross-border oil and gas M&A transactions. Geographically, the sample includes 146 different hosts/target and 89 buyer countries and covers a global focus.

## 3 Results (preliminary)

Our results demonstrate a view of M&A transactions in corporate and asset deal levels as well as in different segments of the oil and gas industry, e.g. upstream, downstream or midstream. The results suggest that there is an increasing trend in upstream M&A investments and deals are mostly in the asset deal level. It can be explained by the pressure on oil and gas firms to invest in exploration and production activities in order to be capable of competing in the international markets and securing their need for future productions. Moreover, the most preferred deal type is "acquisitions" and it is consistent with the importance of gaining full ownership advantage or full control in oil and gas business. (Hsu et al., 2017). It is also parallel to the development of the oil and gas industry over the past decades, i.e. shale oil revolution, technological advancements or volatility of oil prices and their expected impact on cross-border M&As, particularly in upstream transactions. Furthermore, our analysis lists the top host/target countries, top buyer countries and mega deals. Some other key findings are that there is no strong capital flow from rich to poor countries which is contrast to prior findings. Furthermore, oil exporting countries such as OPEC countries show low levels of M&A inflows. Regarding investment portfolios of countries, the findings show different outcomes, e.g. emerging countries such as China, prefers to have diversified portfolios and invest in different countries in terms of country-level indicators. On the other hand, developed countries such as the UK, Australia prefer to reduce any kind of financial, political and institutional risks and invest in other developed countries with rich natural resources or advanced technology. Last, our results illustrate patterns between oil and gas prices, important sectoral shocks and M&A transactions. Addition to that, we suggest an impact of institutions, tax regulations, resources and financial markets. On top of that, politic plays a key role for cross-border investments. Our study suggests certain differences between domestic and cross-border M&As, between M&As in general and oil and gas M&As and suggest a strong influence of sector-specific factors on M&A transactions than some country-specific indicators, which are profound in prior M&A studies.

## 4 Conclusions

The study contributes to the natural resources studies, energy economics, international business and M&A literature by drawing a conclusion based on analysis of cross-border oil and gas M&A transactions. In addition to that, the study represents the patterns of cross-border oil and gas M&A transactions, which contributes to the geography-based and sector-specific views of oil and gas strategy. The analyses are done at various levels, i.e. dataset is based on different deal types and deal levels, e.g. corporate and asset deal levels or mergers, acquisitions, acquisitions/farm in and other deal types, which also includes some types of transactions specific to oil and gas industry. In this respect, it is one of the first study of oil and gas M&A analysis with a homogenous and extensive data set and allow us to distinguish micro-level patterns of oil and gas transactions. Overall, the review provides us valuable knowledge on cross-border oil and gas M&A transactions and the role of host/target country and country's institutions, regulatory, tax, politics, financial and economic environment for the transactions. Further, the study shows the relationship between oil and gas prices, sectoral shocks and the development of oil and gas M&A transactions and observe that this sector-specific factors impact the development of M&A investments in the oil and gas industry. Hence, our integrated framework support to explore certain patterns of oil and gas M&A transactions, descriptive statistics and expected determinants of cross-border oil and gas M&A transactions, the further step requires empirical testing and validation of results. To this end, we expect the comprehensive survey paper would help scholars, consultants and support sector participants in global oil and gas investment decision. Future research can study the determinants of cross-border oil and gas M&A transactions based on the outcomes of this exploratory research.

[4] According to IHS Markit (Connect), asset deals generally include straight acquisition of (or farming-into) assets (e.g., acquisition of a complete or partial interest in an oil and gas field) from a parent company, acquisitions from parent companies of subsidiaries or regional affiliated entities that hold ownership in assets, and may include the acquisition of minor corporate entities that only hold ownership in a single significant asset. 'Corporate' deals include acquisitions of, or mergers between, parent corporate entities, acquisitions of percentage stakes in parent corporate entities (including open market purchases), private equity investment into parent corporate entities, and the merging of significant full-scale operations in an industry or sector (e.g., Statoil's and Norsk's merger of upstream operations), 2019.

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