

**16th IAEE European Conference 2019**

## **Oil and Gas Investments**

**“Cross-border oil and gas mergers  
and acquisitions transactions and its  
comprehensive overview”**

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**University of Vienna,  
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Ljubljana, 28<sup>th</sup> August, 2019

# Outline

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- Oil and gas industry is essential to world economy.
- Attempts to explain oil and gas investments and its underlying motivation and drivers face a huge challenge due to the complexity of oil and gas industry.
- 2000 – 2018: Increasing trend on oil and gas M&A transactions: the interactions of various elements such as **resource availability, geographical characteristics**, technological advancements, **supply-demand, volatile commodity prices, (inter)national competition**.
- Previous literature: Interdisciplinary research of M&As. However, no consensus on oil and gas M&A transactions and its underlying drivers and unique characteristics, also rare academic studies of extracting industry, especially, oil and gas industry in recent years (Hsu et al., 2017).
- **Motivation:** Survey of the oil and gas M&A transactions, particularly, cross-border M&As and recent trends and limitations.

# Content

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- Background
- Motivation
- Literature and Decomposition of Oil and Gas M&As
- Data
- Results
- Conclusion
- Discussion

# M&A Transactions by Industry

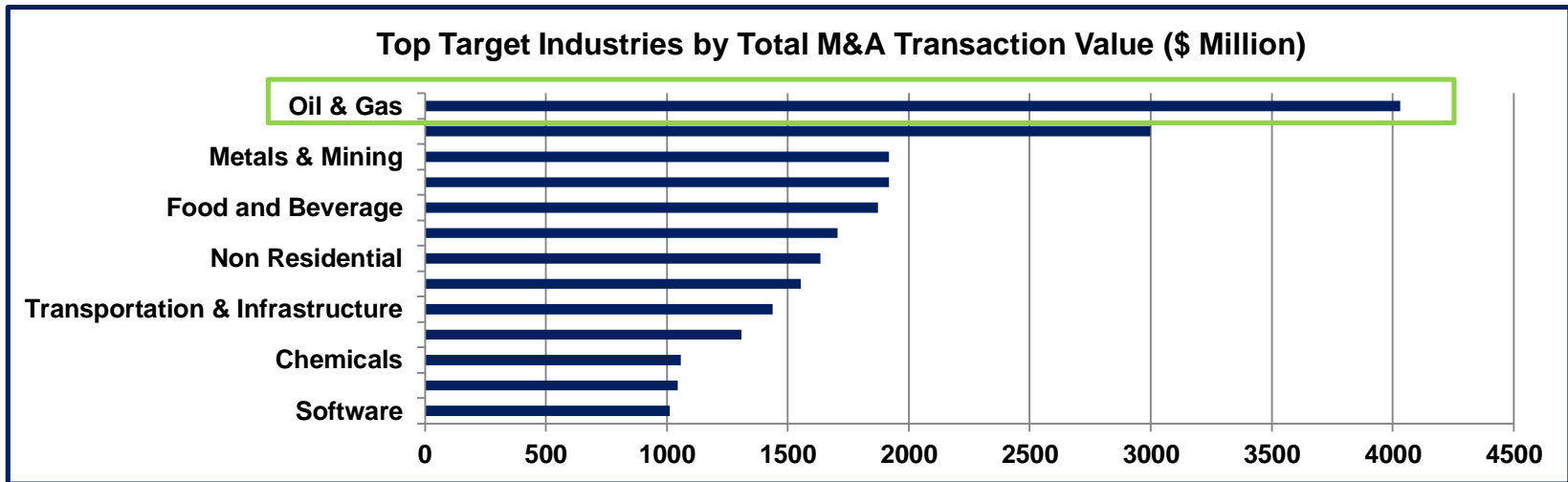


Figure I: M&A Volume Analysis – Industry and Geography, M&A deals completed between 2000 and 2017.

Source: Thomson Reuters, 2017.

- **M&A remains as a key growth strategy, particularly in the oil and gas industry, it is one of the most common inorganic growth method** (Abdulleveya, 2015).
- Sufficient and continuous investments and the future development of oil and gas supply is crucial (IEA, 2018).

# Who is where, what for, limitations?

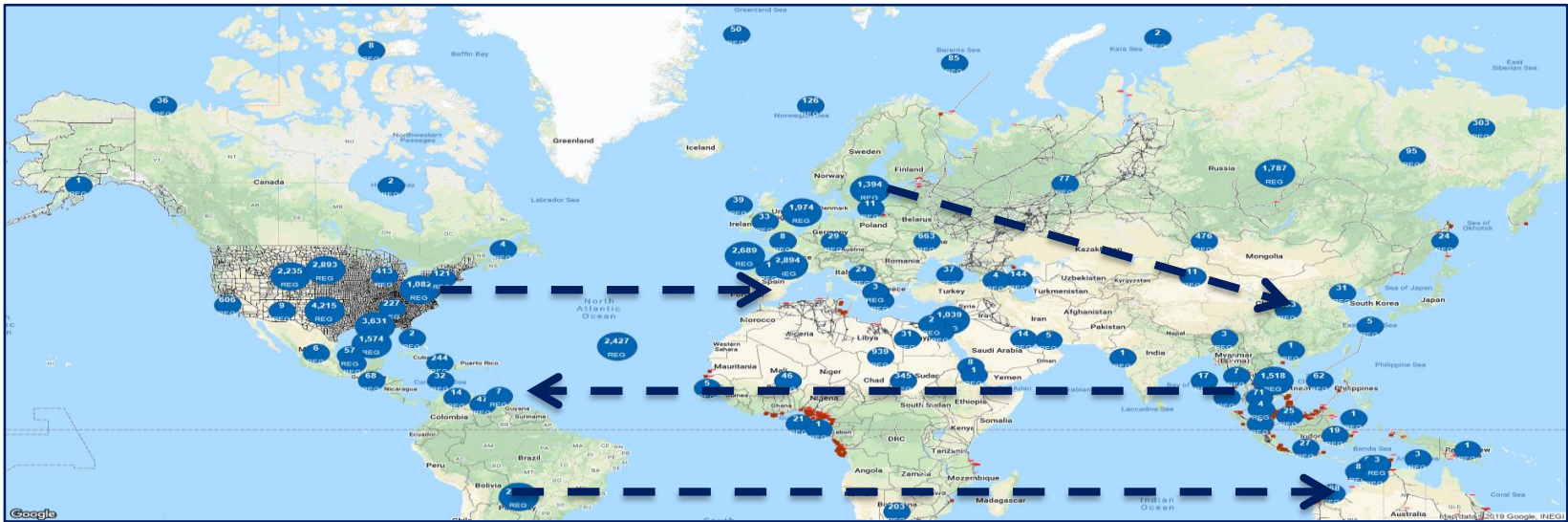


Figure II: Partial overview of O&G M&A transactions based on deal counts

Source: IHS Markit, 2019.

- **Goal: (i)** Identifying the motivation of M&As and flows between countries based on various patterns of oil and gas transactions.
- **Research Questions: (i)** Which theories help to explain cross-border M&As in the oil and gas industry? **(ii)** What makes a target country attractive in the oil and gas industry?

# Literature and system decomposition

Transaction cost economics (e.g., Coase and Williamson, 1983, 1996)

Property rights theory (e.g., Hart, 1995)

Institutionalization theory (e.g., Rossi and Volpin, 2004)

Neoclassical and behavioral economics approach (e.g., Mohn and Misund, 2009)

▪ **Inconclusive and heterogeneous findings.**

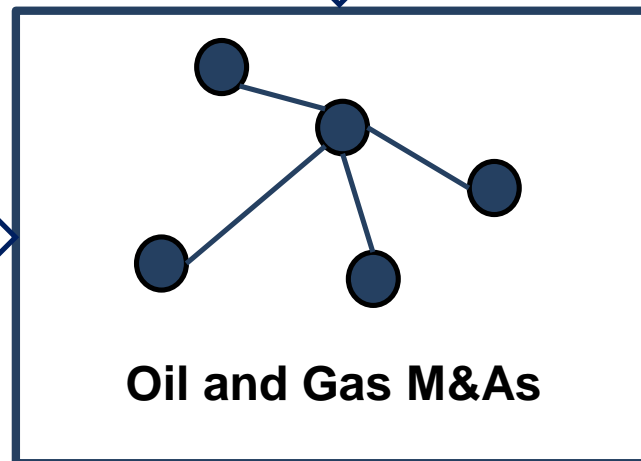
- Transactions costs
- Property rights
- Macroeconomic environment

## Expected drivers

- Institutional environment
- Culture and geography

## External factors

- Resource-dependence
- Technology
- Crude oil prices
- Natural gas prices



## Outcomes

- Flows of domestic M&As
- Flows of cross-border M&As (acquirer vs. target country)

# Oil and Gas M&As

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## Motivating facts

- economic and strategic concerns
- potential gains from integrations (**vertical vs. horizontal**)
- **technological advancements**
- **replacement of reserves**
- finite natural resources
- **oil price volatility**
- industry dynamics, events/shocks
- **asset recombination and reallocation**
- contracts
- uncertainties, risk and conflicts (e.g., physical shortfall, Arab-Israeli conflict, Arab Spring, Cold War)

## Potential determinants

- target-country-level, -sector-level, -company-level

## Propositions

- Interaction between reserves and M&A investments
- Portfolio considerations (e.g. hedging against certain economic or political events)
- Incomplete contracts (property rights)
- Institutions and regulations

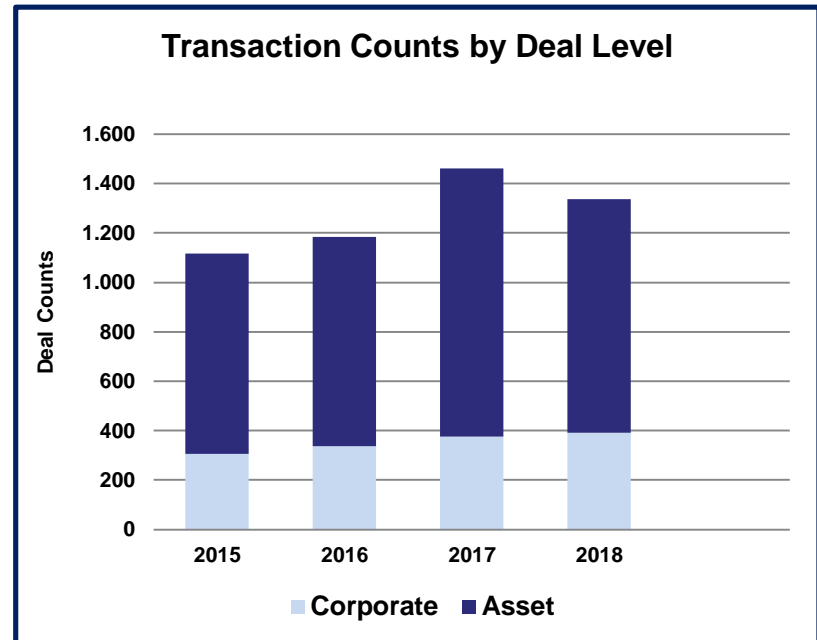
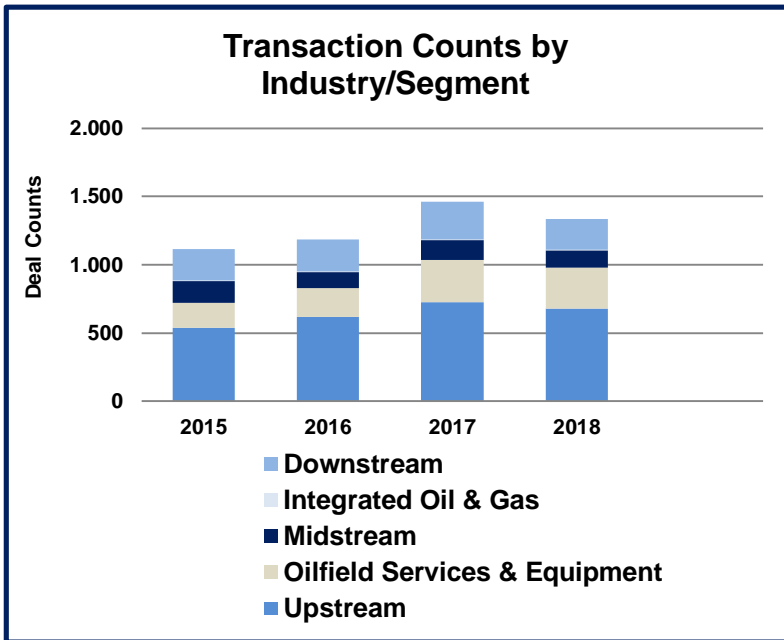
# Data

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- **Data:** IHS Markit, Transactions Database (<https://connect.ihs.com/home>)
- **Period:** 2000 – 2018 (sample which includes more than 18.000 transactions)
- **Deal Types:** Acquisitions, Merger, Acquisition/FarmIn, Acquisition/Joint Venture
- **Industry Segment:** Upstream, Midstream, Downstream, Integrated Oil and Gas, and Oil Field Services and Equipment
  
- **Allocation of the data and descriptive statistics:**
  - Cross-border vs. Domestic deals
  - Asset vs. Corporate deals
  - Major players
  - Top target vs. acquirer countries
  - Transactions by Industry (e.g., upstream vs. downstream)
  
- **Descriptive statistics based on total M&A deal counts**
  
- **Cross-border deals are defined based on buyer`s headquarter and target country**



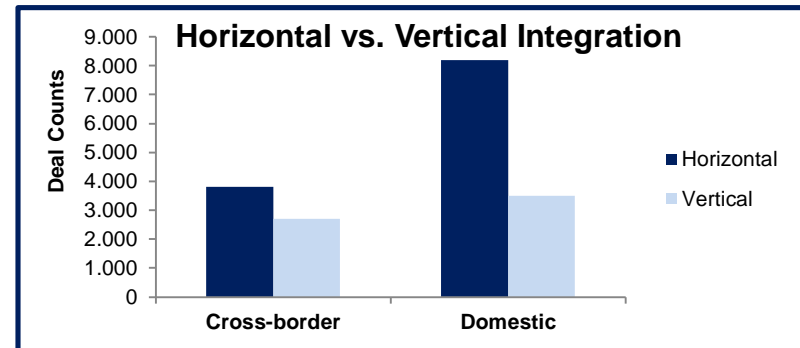
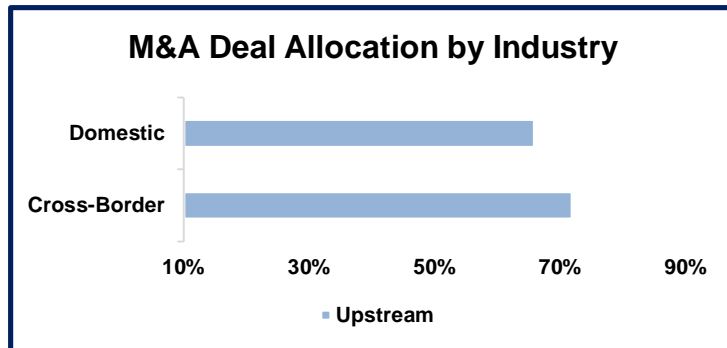
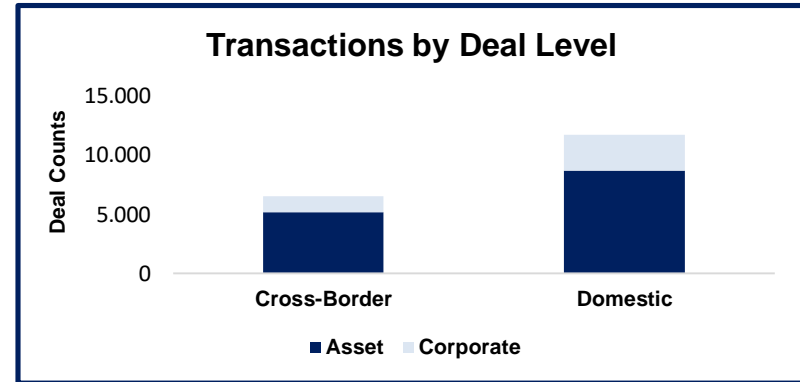
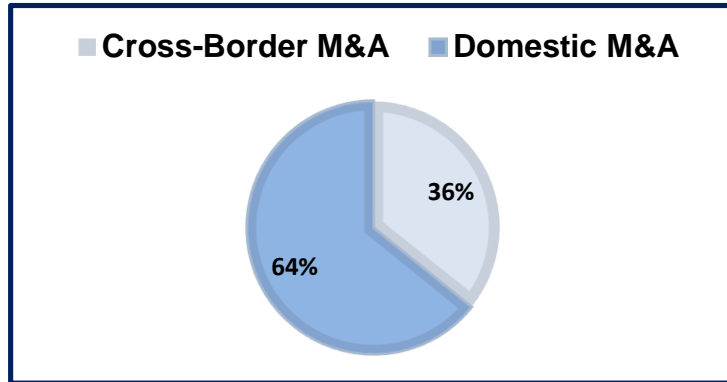
# Recent M&A Transaction Trends



**Figure III-IV:** M&A transaction trends based on industry and deal level.  
**Source:** Own depiction based on IHS Markit, (Connect) 2019.

- Oil and gas companies have prior concern on the **replacement of reserves, gaining asset ownership, asset reallocation and combination.**
- Upstream determines supply.
- Challenge of Upstream** → high financial risk with high return, regulated industry, impacted by global politics and high technology intensive industry

# Results I



**Figure V-VI-VII-VIII:** M&A transaction trends based on industry, deal level, integration type and inter(national).

**Source:** Own depiction based on IHS Markit, M&A Transactions Data Sample, 2019.

- Cross-border M&As impose more pressure on companies due to the institutional and political environment of the target country and other uncertainties
- Increased horizontal integrations → financial or operational gains, substantial synergies.

# Result II

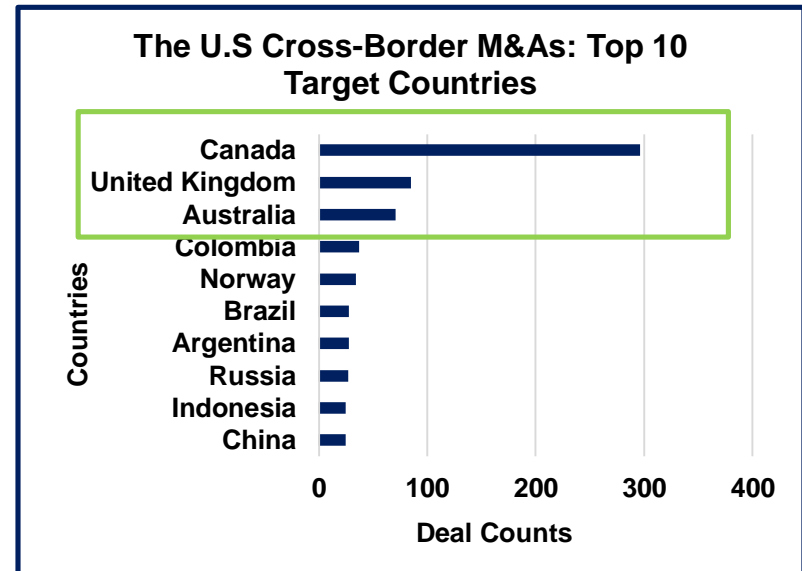
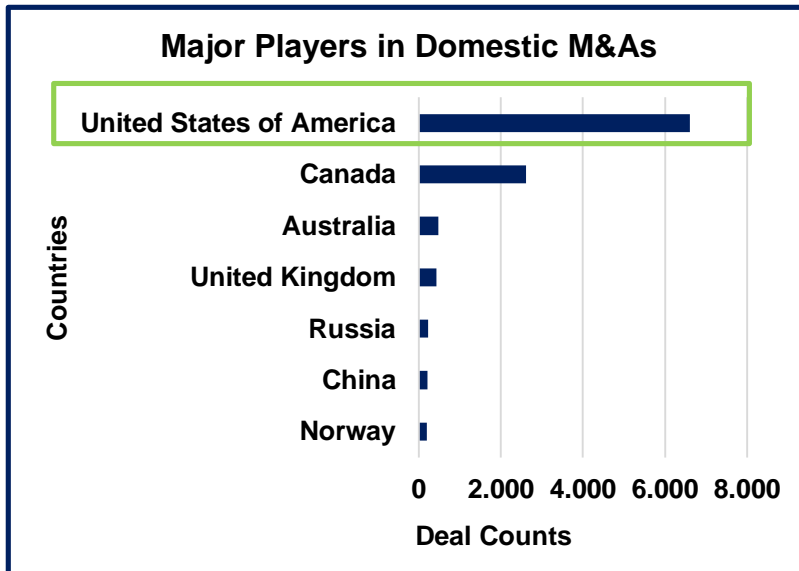
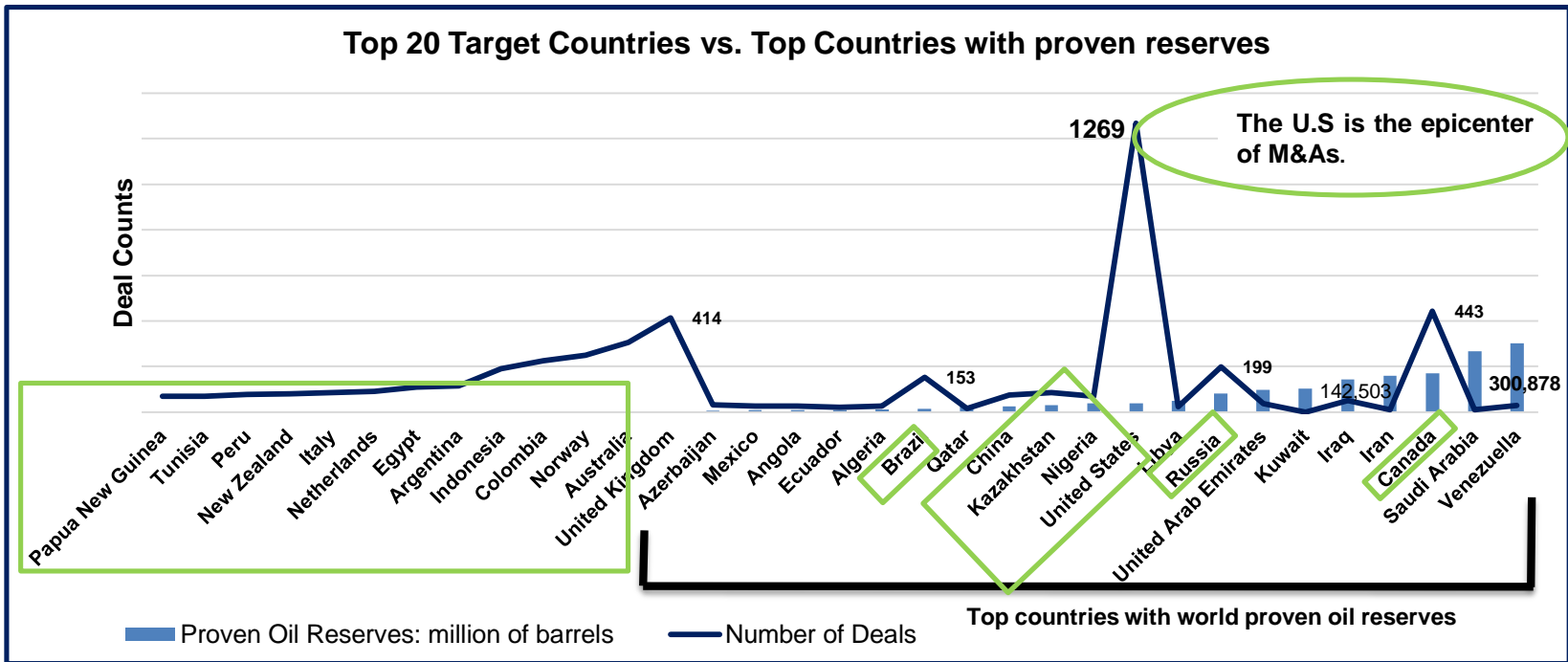


Figure IX-X: Domestic M&A transaction trends based on major players and the U.S.

Source: IHS Markit, M&A Transactions Data Sample, 2019.

- The domestic transactions are dominated by the U.S – **shale oil/gas revolution? – domestic production (change from importer to exporter).**
- Investments into unconventionals by the U.S and Canada.
- Cross-border transactions of the U.S → what about regions, which have rich natural resources (e.g., Middle East or Africa) are not in the scope –institutions? –political risk? –sanctions? –cultural differences? –distance?

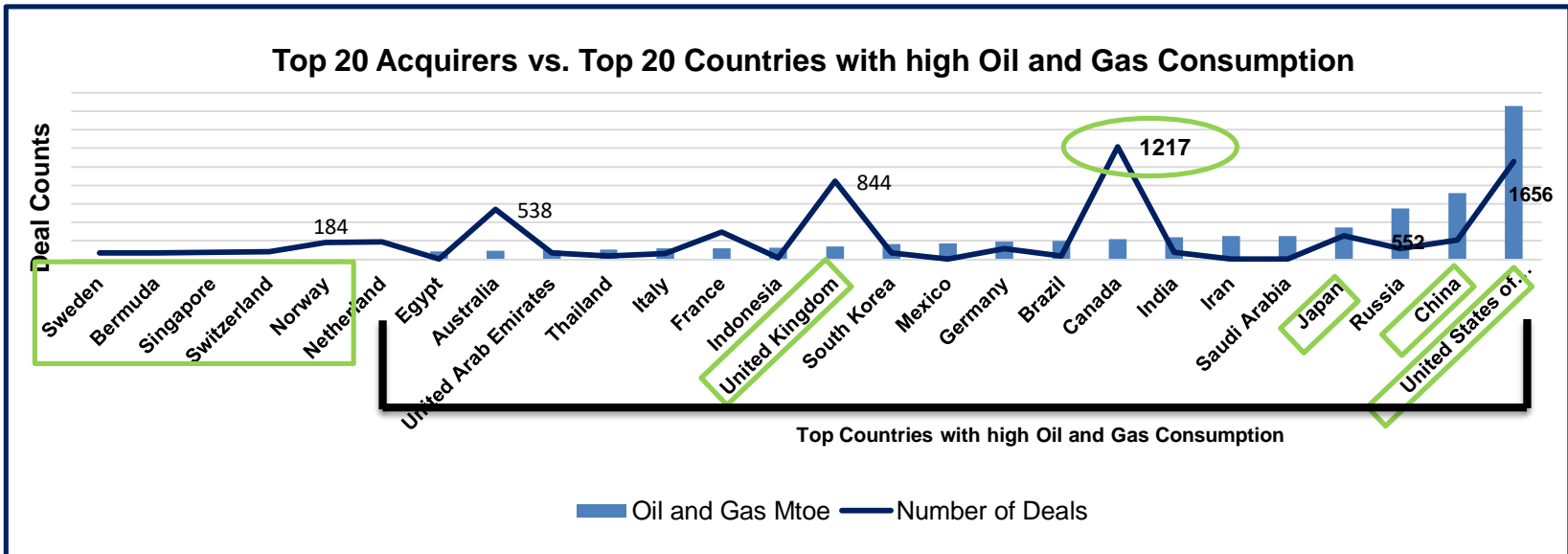
# Result III



Source: Own depiction, Cross-border transactions sample, US IEA.

- The most stunning is the mismatch between M&A transactions and resources, thus the countries with truly large reserves or OPEC countries.
- **Political constraints beat economical considerations**

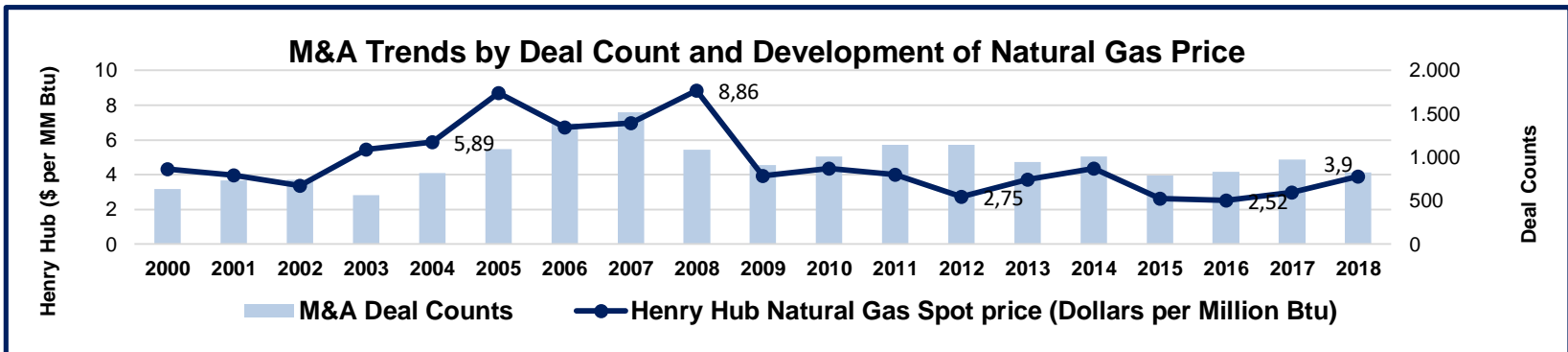
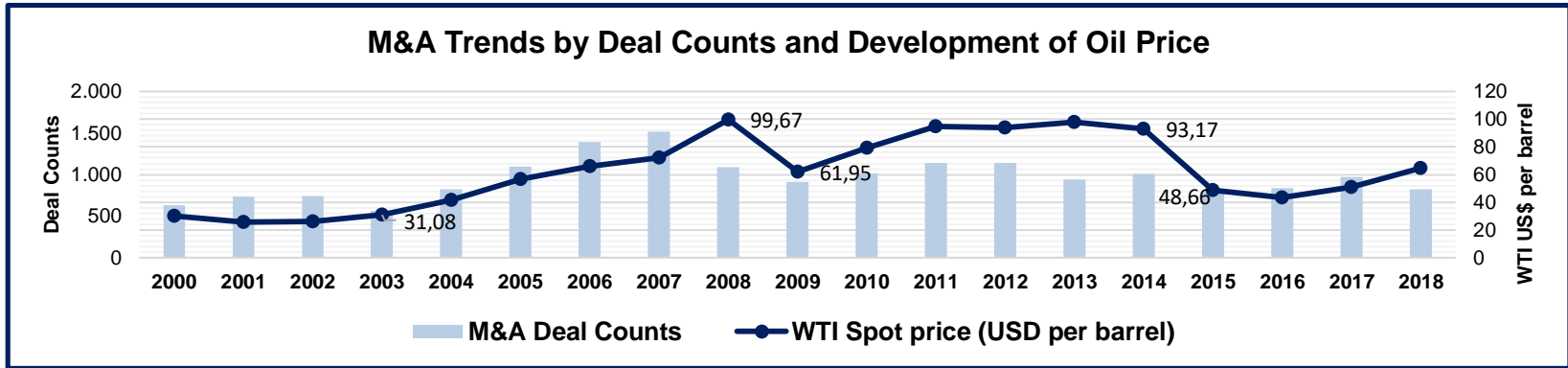
# Result IV



Source: Cross-border transactions sample, US IEA

- Acquirers in cross-border transactions are mainly from developed countries, particularly, European countries either with increasing demand or limited access to natural resources.
- Countries such as Canada, the U.S, Australia or Russia → strategic considerations to extend exploration and production activities.
- Integrated oil and gas companies invest to Upstream

# Result V



- Correlation between oil price and M&A deal counts.
- No strong/significant relation between natural gas price and M&A deal counts.
- Empirical test is required.

# Conclusion/Contribution

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- Out of the qualitative arguments and the review of M&A theories, the results show that underlying drivers of cross-border M&As can be explained by several theoretical foundations.
- **Highlight:** Institutional differences among geographical territories produce different economic outputs and business opportunities thus drive and shape the emergence of M&A inflows.
- Lucas's paradox: there is **no significant flows from developed countries to developing countries**
- Oil and gas investments, particularly upstream investments are rather driven by regulations, geopolitics than other externalities
- **Changing global picture**
- **New sophisticated data set** of oil and gas M&A transactions.
- **First paper showing various patterns of oil and gas M&As** based on deal level attributes.
- Extension of the studies of Reddy, K., S. and En, X. (2017), Ng, A. and Donker, H. (2013) and Hsu et al. (2017).

# What's next?

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- **Need to identify best realistic pathways for future investments**
- Further analyses in the sub samples
- Identification of drivers of upstream M&As (downstream vs. upstream)
- Empirical application (M&A in general vs. cross-border oil and gas M&As)
- Agent-based model approach –mechanicsm of the cross-border oil and gas M&As
- Consideration of policies, energy transition and its impact on oil and gas investments
- Impact of Paris Agreement
- Overall energy transition and oil and gas industry
- Policy/regulation changes (**e.g., EU- country-by-country-reporting**)



# Discussion

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