**Title**: Buyer Power in Upstream Energy: Do Large E&P Firms Blunt Oilfield‑Services Cost Pass‑Through and Sustain Higher Margins?

**Motivation**: I was interested in Minsky’s framing that aggregate demand (level and composition) determines aggregate profit, but individual firms try to capture a higher share of it by exerting their market power. I want to empirically examine how firms could use their market power to extract a higher share of profit. To avoid excessive generality and uncontrollable variance, I decided to focus on one industry.

**Industry choice (pending approval):** E&P in upstream energy. Rationale:

1. Sufficient quantity of firms. About 30,000 firm-quarters after excluding firms that are not E&P pure plays (E&P sales < 80% of total sales)

A graph with blue lines

AI-generated content may be incorrect.

Data source: Compustat

1. Clean thesis. E&P firms are commodity (oil & gas) sellers and service (oilfield service, OFS) buyers. From the seller side, all of the firms are price takers and have no market power, since bulk commodities markets are cleared internationally. However, from the buyer side, large firms have considerable market power by possessing a stronger negotiating position with the OFS providers. Since almost all E&P firms buy OFS service from contractors, firms with buyer power should experience weaker pass-through of OFS cost shocks in operating margins, particularly in downturns when supplier capacity is under-utilized. For example, during a recession, E&P firms with buyer power may negotiate a lower OFS cost more quickly than smaller E&P firms.
2. Great macro data availability. The two main profit drivers for E&P firms, energy prices and OFS costs, have good proxies. I already have data for WTI, HH natural gas, the industry PPI series for drilling, and the industry PPI series for drilling support activities.
3. Implications: 1) This is a good example where market power drives industry consolidation. 2) This is a good example where upstream consolidation hurts the profit margin and pushes consolidation in the midstream. 3) Although more micro than my original grandiose thesis, it is still an innovative work on macro-micro linkage with no similar precedent.

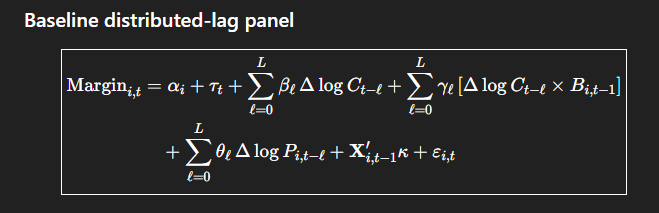
**Research design:**

Hypotheses:

H1 (pass-through): Increases in OFS costs reduce E&P operating margins.

H2 (buyer power): Firms with greater buyer power exhibit weaker OFS cost pass-through to margins.

H3 (state dependence): The buyer-power dampening is stronger in slack supplier markets.



Ct is the OFS cost, and Bt is the normalized buyer power. The definition of buyer power is still open, which could be sales market share (or balance sheet size) \* sales HHI, expense market share \* expense HHI, or network centrality, such as board member network centrality.

Margin could be EBITDA margin or operating margin. I still need to do some research on E&P-relevant accounting, as the cost of goods sold for E&P firms is less straightforward.

This design, which does not regress individual margin on aggregate margin, does not require me to include all the E&P firms in my sample, as the size variation in the listed firm should be enough for my regression. Since E&P is a scattered industry with many private firms, this is worth noting for transparency purposes.

**Literature support:**

1. A body of “countervailing power” empirical studies suggests that large buyers extract discounts from competitive sellers but not from monopoly sellers, which also depends on seller capacity constraints. The OFS industry is not a perfect monopoly with local competition; thus, I expect better contract pricing for large buyers, especially during a downturn.
2. Osmundsen, Petter, and Rosendahl, Knut Einar, and Skjerpen, Terje, Understanding Rig Rates (December 30, 2013). Toews, G., & Naumov, A. (2015). The relationship between oil price and costs in the oil industry. *The Energy Journal*, *36*(1\_suppl), 237-254. Two empirical papers on rig rates pricing show that both oil price and utilization push up rig rates, but with a lag. This shows that rig rates do fluctuate with oil prices and demand cycles, and thus should affect the margins of E&P firms.
3. <https://www.reuters.com/business/energy/big-oil-enters-2024-strengthened-by-us-industry-consolidation-2023-12-26/?utm_source=chatgpt.com> A news report where an energy consultant complained, “Consolidation is actively changing the landscape. Consolidation is good for producers but doesn't help service companies at all. It will squeeze their margins as existing contracts are renegotiated”.
4. <https://www.reuters.com/markets/commodities/us-oilfield-firms-slash-prices-mega-mergers-shrink-customer-base-2024-07-24/?utm_source=chatgpt.com> Another news report “A wave of mega-mergers among oil producers is forcing the U.S. service companies that drill and hydraulically fracture wells to slash their prices, merge, or risk bankruptcy as they compete for a dwindling number of customers.”
5. <https://www.hartenergy.com/exclusives/oilfield-service-firms-keep-merging-survive-213469?utm_source=chatgpt.com> A news report showing that OFS providers are also merging to survive. Does it have anything to do with the consolidation among their customers?

Timeline:

First month: Finish preliminary statistical analysis. Proceed if the results are interesting. If not, consult mentors on whether I should proceed. With my current familiarity with the Compustat database and my code bases, I can switch between industries easily. After deciding on the industry and the thesis, I will create a detailed outline and timeline and submit it to the mentors.

Second month: Extensively read about industry domain knowledge and relevant theoretical frameworks. Start writing the literature survey.

Third month: Finalize the baseline panel regression results and the interpretation. Work on robustness analysis.

Fourth month: Finish the full literature survey and finish the statistical analysis.

Afterwards: Finish writing the whole paper.

Github Repo where you can track my real-time progress: https://github.com/xcnecon/thesis-energy