Econ 243

11.02 notes

double marginalization, vertical relations

beer: need suppliers, few sources → they get market power. how handle?

autos: parts are model-specific → bilateral monopoly

ex ante competition at the bidding stage

ex post monopoly once production begins

think Federal Mogul (now Tenneco) and Mahle, the two firms that dominate *all* global diesel piston manufacturing.

both have plants in North America, South America, Europe, China, and Asia ex-China. their customer list (I've seen those) include everyone – even if VW mainly buys from Mahle, they still have some things they get from Federal Mogul.

pistons are engine specific: while they may look like cylinders, they're not – reciprocating up and down means they work better with an ovoid shape. and their dimensions must be good to a few microns, and the design matches oil flow and on and on.

but also steel mills must get iron ore, (older) power plants must get coal … and these may or may not have market power. vertical relations are pervasive.

= double marginalization graph

upstream firm sets price based on market power.

downstream firm faces that higher price as its marginal cost (plus any additional internal costs)

» result is that price is much higher than the monopoly price based on the combined marginal cost of the two firms.

- indeed, total profits of the two firms are less than the monopoly level. [*after all, any (p,q) combination besides the pure monopoly level must have lower total profits. but when we detail this, the profits are visibly lower*]

how can we overcome?

» strict contracts.

» vertical integration: the downstream firm can buy its upstream supplier.

» encourage entry. firms can pay new suppliers to enter, shifting negotiating power.

» try to replicate the monopoly outcome: two-part pricing (fixed payment plus unit price).

strengths and weaknesses

» strict contracts

- if your piston supplier suddenly needs new machinery, and says they can't deliver unless you pay them more, what are you to do? sue them? then how are you as VW going to sell any cars in Europe? having a court give you a partial settlement 6 years later?! – VW's out of business

by then! get another supplier? – that's at best a year-plus process, at worst it requires redesiging your engine, a multi-year process

- VW can play a similar game: Mahle is their prime supplier, and the factories dedicated to their VW business have no value otherwise, whose existence would be threatened by losing a contract they can
- so while "holdup" may be against the contract, legal remedies are of no use.
  - » I spent time on Wall Street negotiating contracts. when the borrower violated terms and didn't pay, no one looked at the paperwork – with their carefully crafted cross-default clauses, penalty rates, and so on.

    in 1978 negotiating a complicated contract could incur $40,000 in lawyers fees just for "my" bank [think $250,000 or more today]. but the contracts proved worthless.
  - » think military contracts: cost overruns are the norm, not the exception. and they're not small

    the cost of an aircraft carrier (Bloomberg: $28 billion, and planes still can't take off reliably!) or nuclear submarine can double or more … but once the contractors are chosen, the Dept of Defense has to stick with them or start from scratch, and any alternate contractor will be even better positioned to game the system!
  - » so … lawsuits are about revenge, or a divorce between two well-heeled companies.

» vertical integration ignores organizational issues

- won't managers have political power inside the (merged) firm? the downstream acquirer can't tell if their new division president really needs the "necessary" additional resources
- and how much profit should the new division earn? it can always boost apparent profitability by agreeing to a higher transfer price. of course the profits go back to the new "downstream" parent company, but we're right back to a higher input price generating double marginalization!!
- the downstream acquirer presumably has an operational structure, production setup and labor force designed for their original, narrower set of tasks. VW is unionized. their new piston division may have to raise its wages and (no tears!) managerial bonuses to match those of the parent company. plus they may not understand which R&D needs funding, which plants need renewal (the divisional manager will of course plead "all of them"), and cost cutting out of ignorance, well, that doesn't generally end well!
- PLUS … as noted above, Mahle used to sell to everyone. but are BMW and Renault and GM China now going to buy from VW?? no way! so Mahle loses its economies of scale, while Federal Mogul gets renamed Federal Mogul Bank because it has so much money.
- in the real world unwinding in the other direction is hard, too. both GM and Ford were vertically integrated, and spun off their parts making operations circa 1990 (as respectively Delphi and Visteon). but they were inefficient, thanks to the incentives internal to a big car company (as per above) and headed into bankruptcy. GM had to agree to renegotiate contracts at (much) higher prices, while Ford bought back a bunch of parts plants from Visteon. at a premium.

» encourage entry.

- that's what happened with the big beer brewers who set up in Eastern Europe after the collapse of the USSR. they put together an agronomy team and funded "model" farms and associated warehouses and experimental stations to localize fertilizer and other planting practices.

- in the auto industry, companies routinely invest to develop a "second source".
- Silicon Valley (or at least those putting their money into ventures) don't understand this. Waymo won't dominate autonomous vehicles. GM has their project (now joint with Honda), other companies have other partners.
- and all will similarly separate hardware from software (despite the hopes of Intel in their purchase of Mobileye, for which they paid a few billion premium).

» contract around: with the potential to earn monopoly profits by coordinating, firms that put up with double marginalization are leaving (lots of) money on the table.

- set the transfer price equal to marginal cost, not the market power p > MR=MC level.
- set a separate fee that provides the upstream supplier with more profits than they get under double-marginalization.

> does this happen? well, it's not unknown for a car company to pay for tooling and engineering at upstream suppliers, a fixed cost. in return, the downstream car company pays a lower piece rate.

SO … keep all this in mind as you read the Dicke chapter for Monday

think about it this way: Why don't we see "factory stores" in the (global) auto industry? (*The only systematic exception is Tesla – how is that going? – though as I understand it car companies subsidized their Manhattan dealerships, because the cost of land is such no private entrepreneur would set up one up. They're all lined up along 11th Avenue around 50th Street…*)