Capacity as a Real Option

By Robert Endres and Jarvis Cheung

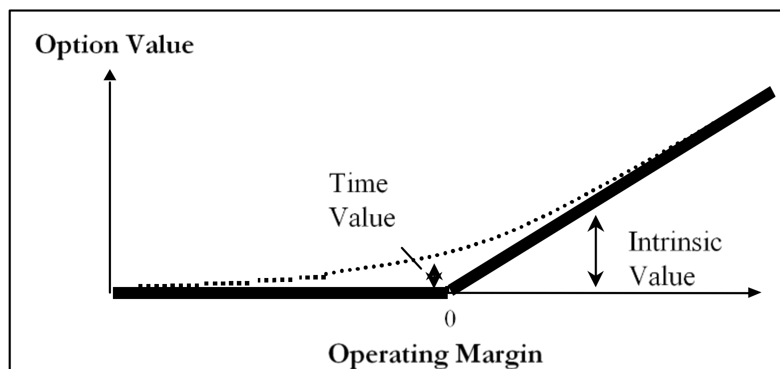
Many commodity suppliers are concerned about security of placement… i.e. security that they will be able to place their supply into the market place. In the case of some suppliers, a strategy of 'overselling' is employed, where they commit – under contract(s)- to sell more than they produce or can produce. In doing so, they can ensure placement of their product, spread fixed costs over as much production as possible, and take advantage of pricing downturns in the spot market … by purchasing lower cost spot material to cover customer commitments.

Sounds good, but the strategy may not be optimal.

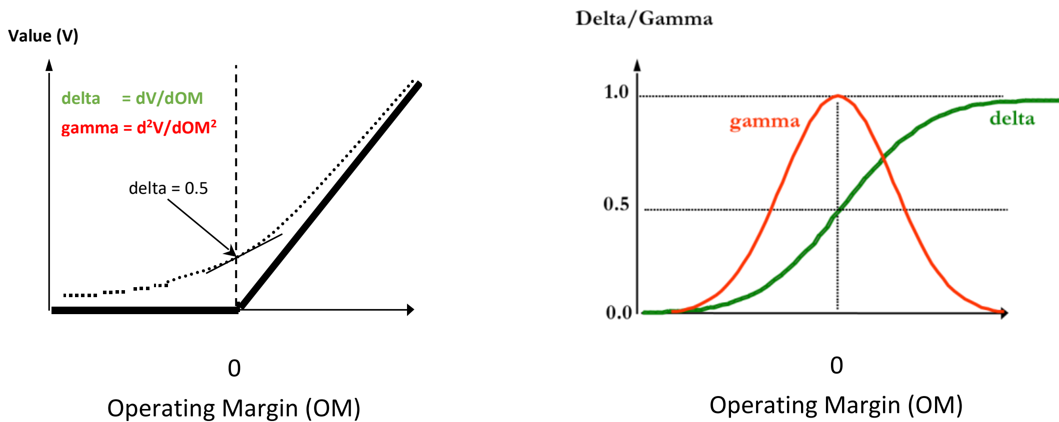
By selling all their capacity at contract pricing, the Supplier is negating their ability to opportunistically take advantage of optional 'peaking' capacity (described in more detail later) during times of product scarcity. Product scarcity manifests itself as higher operating margins and large positive spread differentials between spot and contract prices. The Supplier's ability to participate in these anomalies is diminished under an oversold strategy, because all their capacity is committed at contract pricing.

I still don't quite understand what you are getting at.

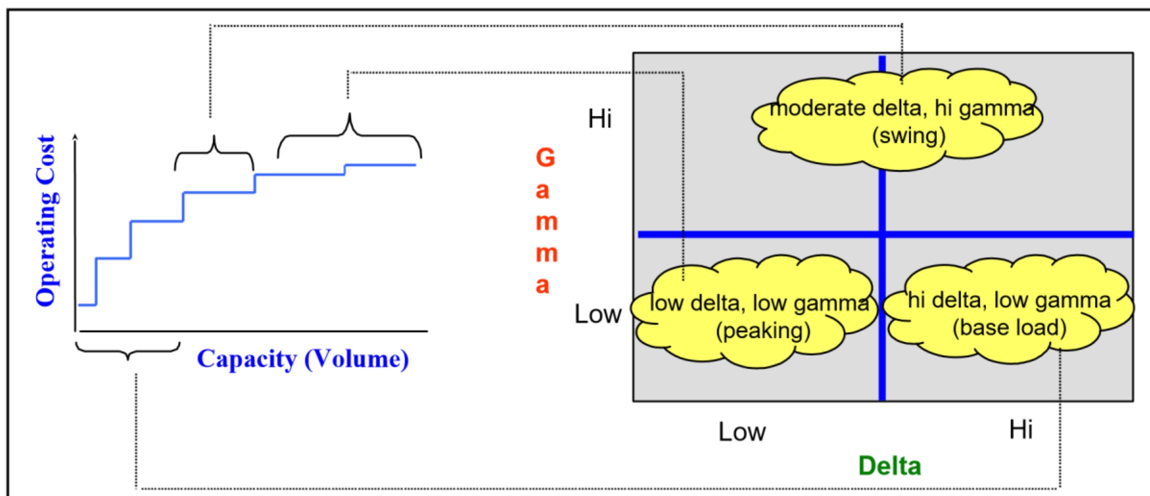
The problem is due in part to a failure to recognize production capacity as a 'real option', and accordingly develop and execute strategies that take that into consideration. Indeed- production capacity is a real option. It's essentially a 'right' to an operating margin, 'exercisable' at the unit's cash cost of production. The capacities 'intrinsic value' (whatever positive margin can be made at the time) is well understood by the Chemical industry. However, even at margins below the production unit's breakeven cash cost (when we might temporarily shut in the unit), the unit still has value. It's called 'time value'. Time value is not well recognized, nor understood in by industry, but is the foundation of an entire class of profitable transaction strategies.



At any given time, the dynamics of an option's value can be described in terms of its 'delta' and 'gamma'. These are the 1st and 2nd order (partial derivative) changes in the value of an option, with respect to changes in price (operating margin).



If a typical business were to segment its production capacity in terms of relative delta and gamma, they might find that the capacity separates (roughly) into 3 groups: base-load, swing and peaking capacity.



In overselling and fully subscribing capacity at contract pricing, the Supplier has converted its position from being 'long' peaking optionality, where the market would pay for a premium (high spot-contract differentials), to being short optionality, without collecting any premium associated with the option value.

OK, I'm convinced there is something to what you are saying. What can I do?

First, craft your marketing strategy in the context of your production optionality. Next, assess the tradeoff between the any benefits you think you are getting in an oversold strategy and the 'give-up' on selling production optionality too cheaply through an oversold strategy. For example, by not committing as little as 5-10% of our production under contract, you can begin to move from "price taker" to "price maker" … and potentially realize more of the option value inherent in your assets through spot sales during fly-ups.

Then, consider financial transactions as way to monetize the option value of peaking capacity. For example, through the formal sale of caps to customers, you can realize added income on peaking capacity that you otherwise sell too cheaply by overselling and retain a hedge on the sale of those caps – the peaking capacity's production[1].

- Rigorously assess the tradeoff between the value of any benefits you think you are getting in an oversold strategy and the value you 'give-up' on selling production optionality too cheaply through an oversold strategy.

- Craft your marketing strategy in the context of your production capacity's optionality. For example, consider eliminating that portion of your oversold contract position tying back to your 'peaking' capacity (your capacity with the highest operating cost). In NOT committing as little as 5-10% of our production under contract, you can potentially realize more of the option value inherent in a fraction of your assets through spot sales during fly-ups. You can move from a position of 'contract price taker' to more of a 'spot price maker'-when spot pricing is higher than contract pricing. And thereby avoid buying in the spot market place, at higher spot prices to "cover" the additional volume demand by customers lifting contract maximums.

- If you want your money now- consider monetizing a portion of your capacity's option value, through the sale of 'price caps to the market- covered by that portion of your uncommitted capacity. The premiums received can help defray costs associated with the volumetric reduction that customers are forcing upon the business when spot is less than contract pricing (vis-à-vis customers taking only contract minimums).

About Synaptic Decisions

Synaptic Decisions is a specialty consultancy focused on helping clients achieve step change improvements in business results through integration of strategy, risk management, negotiations, and contracting.

[1] Financial transactions to monetize peaking optionality value are rarely considered by chemical businesses