MANAGING FINANCIAL RISK IN THE AUTOMOTIVE INDUSTRY – A BRIEF INTRODUCTION TO THE MECHANISMS AVAILABLE ON INTERNATIONAL MARKETS TO MANAGE PRICE VOLATILITY

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Abstract
Commodity markets are increasingly volatile. This volatility has two major implications – companies regularly face the possibility of unfavourable prices, and, in addition, are unable to make accurate forecasts. Overall, higher price volatility can mean an uncompetitive position in a crowded marketplace; higher volatility of earnings; lower profits and higher borrowing costs. These issues at a corporate level filter up to a national level when the tax take decreases and can have a social cost if they lead to job losses.

This paper looks at the mechanisms available to control market risk. Futures exchanges bring together a global pool of buyers and sellers and offer risk-management tools in a highly regulated and efficient way. By using a broker that offers exchange contracts and is a member of a clearing house, the client can be sure of very low counterparty risk. Similar tools are available principal to principal – between a client and a bank, for example. These contracts can offer more flexibility to match the client’s specific tonnage or schedule, but carry a level of counterparty credit risk.

Using a combination of theory and first hand practical case studies, this paper examines the problems that have arisen with hedging programmes in the past and identifies the characteristics that have defined successful ones.

Keywords: Automotive industry, market risk, price volatility, commodity hedge.

1. CURRENT SITUATION IN THE AUTOMOTIVE INDUSTRY [1]
The automotive industry is a formidable employer in Europe. At least 12 million families depend on automotive employment. Europe is the world’s largest vehicle producer with an output of over 17 million passenger cars, vans, trucks and buses per year or 25% of worldwide vehicle production. The 16 major car, truck and bus manufacturers in Europe operate 169 vehicle assembly and engine production plants in 16 Member States, often sustaining the economic fabric of complete regions and cities. The EU produces 36 vehicles per 1,000 inhabitants. How important the automotive industry is for particular European states is shown in the graph in Fig.1.

The car industry is a competitive business; a lot of factors have an impact on the success or failure in the industry. The technical parameters and design are very important as well as the quality of after sales service, but the most significant factor is the price.
2. PROBLEMS IN THE AUTOMOTIVE INDUSTRY TODAY

In the past, the prices of metals and other raw materials were less volatile than they are now. In some cases, when they increased significantly, those extra costs could be passed on to buyers, but this is not often the case today. Demand is low, competition is high and many car markets are struggling, especially in the cheap market segment. An increase of €200 can mean a sale is lost. Consumers will go for the cheapest option, or not buy at all. Both suppliers of metal components and buyers (car or spare parts manufacturers) are facing losses and there is little flexibility. In the past, the large producers would often smooth out price fluctuations for their smaller buyers, but this is no longer the case.

Long term contracts give fixed prices for a year or so, but are hardly ever available now.

It is ironic that one of the reasons why the car industry is suffering so much is because manufacturers have improved their processes (JIT – Just In Time, TQM – Total Quality Management etc.) Such processes cut the amount of metal in stock. So, on the one hand car makers have reduced their stock financing cost, but on the other they are always having to buy on the ‘spot’ market and are at risk from much higher price volatility as a result.

3. STRATEGIES

So, what should we do about the risk? Do we need to do anything?
3.1. Do nothing?
If we do nothing, we assume that we have a symmetrical risk. That means – what we lose one year we will make the next year. But are the good years and the bad years balanced? History tells us this is not the case as markets tend to have a bias in one direction or another. And in any case, if the bad years are so bad that your business is closed down, it doesn’t matter that good years will eventually come – you won’t be there to benefit.

3.2. Simulation
A simulation of possible future development is a tool for calculating the risk of loss. A widely used method of how to measure the risk is Value at Risk (VaR). VaR measures how much a commodity price might move in a given time. For an automotive company worried that the price of aluminium might rise above its forecast price, VaR expresses this likelihood as a percentage - one day 5% VaR of $1 million. That means there is 0.05 probability that the value of the aluminium purchase contract will move by more than $1 million over a one day period.

This is a tool, not a goal. The use of modelling can often give a false sense of security – ‘I am prepared for every eventuality’. On the other hand, some type of risk measurement can be better than none.

You are only prepared for what the model considers likely to happen – remember 2008, fat tails and black swans: “unexpected events of large magnitude and consequence.”

3.3. Hedging
There are financial instruments which can be used to manage the price risk. The most commonly used are:
- Future contracts
A future is an agreement to buy or sell a standard quantity of a specified asset (material) on a fixed date at a price agreed today.
- Option
The purchase of an option gives the buyer (of the option) the right but not the obligation to buy or sell an underlying futures contract for a fixed delivery date at a fixed price.

Such instruments are traded on exchanges. Over 80% of global metal futures and options are traded on the London Metal Exchange (LME). It is a transparent and highly regulated exchange.

4. A CASE STUDY
To clarify how the price risk can be managed, let’s look at the following case.

A) An automotive company buys aluminum cast parts from a supplier in China. The price for these parts is fixed twice a year in August and in February. The price of the parts is based on the LME price at that time – i.e. in August and February.

B) The company sets its vehicle price once a year, in October. The sales team forecasts sales and the procurement team estimates materials cost accordingly, using the LME price at the time i.e in October.

What is the problem?

The manufacturer is obliged to forecast what the price of the cast parts will be, because it does not know what the LME price will be in February and August. If it uses a price that is high (to build in a margin for error) it may make the cars uncompetitive. If it uses a price that is too low, it may end up paying a higher price for the parts and reducing their profit.
It is at risk because the timing of the purchase contract does not match the timing of the sale.

4.1. Natural hedge
The easiest way to eliminate this timing mismatch is a natural hedge.
Say to the supplier: ‘We want one price, fixed for a year and we want it in October’

Then, the car manufacturer is using actual rather than forecast prices when calculating the price of the cars.

But some suppliers won’t change contractual terms. When that happens, the manufacturer has to use the LME to manage the risk that the price will go up.

4.2. Futures
The problem is that if the manufacturer uses a forecast price based on an LME Price of $1700 per tonne today, it will lose money if the LME price rises and the parts cost more.

Solution: Buy LME futures. If the market rises, these futures will be sold at a profit and this will compensate for the loss.

Day One (October):
- Calculate the cost of the car using LME price of $1700 as basis for cast parts to be priced in February and August
- Buy LME futures at $1700

In February:
- Discover the price of parts to be delivered
- Sell LME futures

Result 1: If the LME price is higher, the parts will be at a higher price than budgeted. But the LME futures will be sold at a profit.
Result 2: If the LME price is lower, the parts will be at a lower price than budgeted, but the LME futures will be sold at a loss.

This company would buy half the futures for February and half for August.

Hedging on the LME allows price risk to be eliminated. Once this company buys futures, it will always achieve the price of $1700 it has used in its budget.

4.2.1. What are the possible difficulties?
a) The car manufacturer has bought LME futures. If the LME futures price falls, its broker may ask for ‘margin’ – the paper loss between the original purchase price and the price today. The broker may also ask for initial margin – a returnable deposit to be paid before the trade takes place.

For example: Bought LME futures for February at $1700
One week later, the price falls to $1650
Broker will ask for $50 margin.
This needs to be paid in cash or acceptable collateral.

b) Either the supplier or the car manufacturer changes the delivery date. The manufacturer has to move the hedge from February to March, for example, and the March price is higher than February.

For Example: Bought LME futures for February at $1700
Rolls forward the hedge to March (sell February at $1700, buys March at 1730)
This would lose the car manufacturer $30.

c) The car manufacturer ‘locks in’ a price of $1700 and is protected against higher prices, but his competitors do not. If the price rises, he will be cheaper than them; if the price falls, they will be more expensive than them (because he is buying his parts at $1700 and they are paying less.)

4.3. Options
The car manufacturer can gain protection from an adverse price move and also capture favourable moves by buying options.
Options are like insurance policies. The car manufacturer pays a premium and can buy futures at $1700 if he wants to (because the price has risen) but if the price falls, he does nothing on the LME and buys his parts more cheaply.

4.3.1. The Disadvantage?
The cost. If the manufacturer wants to be guaranteed that the price of his components will not be above $1700, he can pay the premium for an option with a strike price of $1700. But most companies want to avoid this outlay, even though the benefit is substantial.

Solution: If the car manufacturer wants, he can set the price between $1600 and $1800 for example. This type of strategy usually has little or no cost, because the car manufacturer buys Long Call Options (may buy futures) and sells Short Put Option (obliged to buy futures). Min/max strategies match the risk profiles of producers – aluminium smelters or copper mines, for example – with the risk profiles of consumers – car manufacturers, for example. One side is worried about falling prices, one about rising prices. In effect, they buy insurance from each other and sell insurance to each other. The producer buys insurance from the consumer to protect his company against lower prices; the consumer buys insurance from the producer to protect the company against higher prices. They both end up with what they want – some flexibility in price but a guarantee that they will not have an unexpected outcome. If the price ends up between $1600 and $1800, both the buyer and the seller will have this as the final price. If the market rises to $1850, for example, they are both capped at $1800 – a benefit for the buyer but a limit on the seller’s possible profits. If the market falls to $1550, for example, both contracts settle at this price; the buyer’s profits are capped but the seller has achieved the minimum price he wanted. They both know their minimum and maximum price at the start.
CONCLUSION
The automotive industry has perhaps the most complicated risk profile of any industry. Car manufacturers must negotiate contracts for a wide range of components and the pricing of these contracts often does not match the establishment of the sales price. Stocks tend to be low to keep financing costs to a minimum while spot contracts are increasingly volatile. Risk management using futures and options can seem complex, but the benefits are clear – predictability of outcome, accurate forecasting, and for many companies, the difference between survival and bankruptcy.

LITERATURE:
[1] www.acea.be