Forecasting Sales – Competition Scenarios

Predicting the sales of a compound that is still in development and far from the market is one of the major challenges we face in valuation. We might not know the indication of a compound, nor its properties such as safety and efficacy profile. When the compound approaches later stage development and subsequently more and more details about the drug are known, the difficulties of forecasting the sales are different.

In the following series of articles on predicting sales we will discuss different aspects starting with some basic thoughts on predicting sales of clinical stage compounds.

Once we have the first clinical results of a drug, we can possibly exclude some applications of the drug due to safety or efficacy problems. We might already know the mode of administration of the drug and the dosing schedule. The more we know, the better we can predict the positioning of the drug in the market. But even if we know every property of our drug, we can only predict the sales if we are putting it into context with the drugs being on the market today and with the drugs that are still in R&D but might compete with our drug in the future.

To illustrate this let us assume we want to elaborate the possible peak sales of a compound that has successfully completed clinical phase II. The drug is the first that will be orally available for an acute disease that is usually treated by an emergency doctor with a intravenous infusion. There is only one drug approved today for this indication, which we will call in the following DRUG-A. The medical need on the market today is clearly that the patient is able to administer the drug in case of an acute attack on his own at home instead of going to the hospital. The patients can very well predict the situation when they need to take the treatment and there could be high cost savings if the hospital visit could be avoided.

In the case of our drug, which is called DRUG-B, it will be an oral treatment for acute attacks that the patient can take at home, displaying a very similar efficacy profile like DRUG-A. Parallel to ours, there is another company developing a treatment for acute attacks that can be administered orally called DRUG-C. The compound is early in phase II and could be launched three years after DRUG-B. So the possible situations when we will be on market are the following:
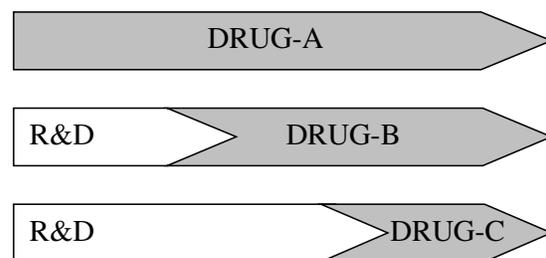

Figure 1. Competitive environment.

Looking at the figure above, we need to consider the following situations to evaluate possible sales of our drug:

Table 1. Possible market scenarios.

DRUG-A	DRUG-B	DRUG-C
X	X	
X	X	X
X		X
X		

The possible situations we might face are to be either on market with only DRUG-A or with DRUG-A and DRUG-C. The scenarios where DRUG-B fails in R&D are of no interest for us. Of course, we could also assume that DRUG-A could be withdrawn. For each of these scenarios we need to elaborate what is the unmet medical need. The drugs on market influence this need. If we reach the market, we address the need of oral administration. The new need might then be better efficacy or another dosing schedule. For both scenarios we will then compare our drug to the competition and define the value drivers that influence the market share we might reach, such as:

- Efficacy
- Safety
- Patient convenience
- Pricing
- …

In each situation our drug performs differently. Efficacy is more important once DRUG-B and DRUG-C are on market. Patient convenience is more important when DRUG-A and DRUG-B are on the market. So each scenario defines the relative performance of our drug. But these factors only consider the drug characteristics. We then also need to consider how the company is performing compared to the competitors? Are we stronger in marketing this disease? Are we more present in the respective countries? Do we have a good reach to the prescibers? Combining these drivers with the properties of the drug then allows us to estimate which market share we might reach in each scenario. The relative market share can be estimated with a scoring model or with a price elasticity model that has been elaborated with key opinion leaders.

Table 2. Market shares.

Scenario	DRUG-A	DRUG-B	DRUG-C
A and B	30%	70%	
A, B, and C	15%	45%	40%

For each scenario we also have to model the market dynamics. While DRUG-B might relatively take market share from DRUG-A because it meets a medical need, DRUG-C will have to do much more marketing in order to compete with DRUG-B.
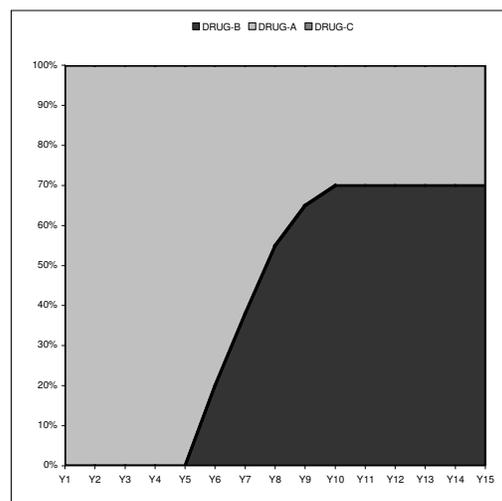

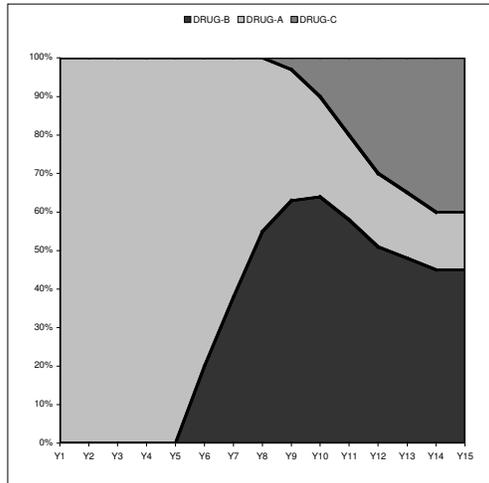**Figure 2. Market share dynamics for DRUG-A and DRUG-B (scenario 1).**

Figure 3. Market share dynamics for all three drugs (scenario 2).

To know the likelihood of the scenarios we need to use the clinical trial and approval success rates. In our example we have the following figures to get approval:
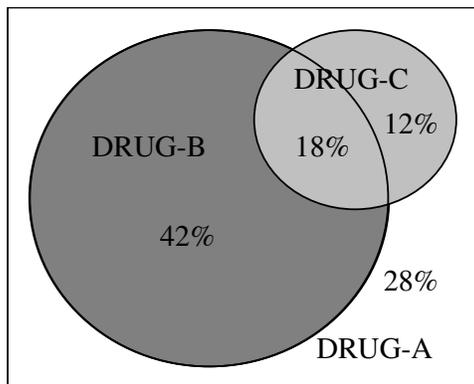

Figure 4. Probabilities of scenarios.

DRUG-B is expected to reach market with a probability of 60%. DRUG-C reaches the market with a probability of 30%. In 18% both reach the market. In 28% DRUG-A remains alone on the market. We are, however only interested in the scenarios, where DRUG-B reaches the market. Of these, in 70% DRUG-B

will only be with DRUG-A on the market, in 30% all three drugs will be on the market.

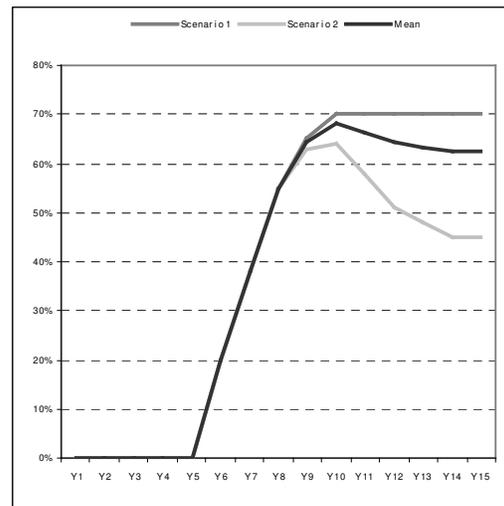We can now take the average of the sales figures of each scenario and input these in our valuation.

Figure 5. Average sales curve for DRUG-B.

Based on this short example we see that predicting sales without considering the competitive environment when on market does not make sense. We need to look at all possible scenarios and then calculate the market share and the sales for each of them.

In a next article we will look in more detail at models to calculate the market share.