The rational way to hedge

Taking a rational expectations approach to forecasting can help treasurers improve their hedging strategies. *Gerard Lyons* of *Chase Manhattan Bank explains.*

Rational expectations combines two separate, but related, areas of economics. First, it addresses the way people form their expectations of what will affect a future variable such as the DM/£ exchange rate; and, secondly, it focuses on whether they make full use of all the relevant information available. The rational expectations model implies that the best forecasts are those made using all the information that is currently available.

The approach is based on the principle that agents should not make systematic mistakes. It is more powerful, and of more use, than ad hoc decision making, which is an arbitrary procedure, or adaptive expectations, in which forecasts are made using only past information.

If market participants make maximum use of the information available to them their exchange rate forecasts should be unbiased. This does not mean that the forecasts will necessarily be correct. A large amount of information becomes available between the time of the forecasts and the outturn. This may result in quite large errors. If, however, a new piece of information differing from that expected becomes available, rational expectations implies that market participants should react immediately to this differential by adjusting their forecasts.

Hedging strategy

Rational expectations can make a number of contributions to hedging practice. It can help the treasurer assess the outlook for a currency over the period in which he is exposed to foreign exchange risk. The more detailed this appraisal the more able is the treasurer to determine the potential risk he faces and thus the hedging strategy he needs. The exchange rate forecast can then determine which hedging instrument should be used.

Consider an exporter who expects to receive DM1m in December and is worried about a possible fall in the value of the DM against sterling. The first thing he should do is try to quantify the size of any possible risk. To do this the exporter would like to have an idea of the expected movement of the DM/£ exchange rate between now and December. A correct forecast of the movement of the DM/£ rate over the relevant period would allow him to assess potential risk in relation to the cost of hedging his position.

The exporter could construct scenarios for the possible future movement of the DM/£ rate over the period to December and see what effect the movement of the exchange rate in these ways would have on his DM receipts. To decide on the future exchange rate he may formulate his own forecast, or base his decision on other forecasts. These, however, are liable to be different, partly because there is no widely accepted model of exchange rate determination.

Suppose, for instance, that all forecasters predict no fall in the value of the DM. This implies that the exporter faces no currency risk. To improve his decision, he should increase his information set as long as the gain from doing so exceeds the cost. This depends on whether the exporter has the time or resources to spare.

Watching the market

The treasurer may find it helpful to look at how forecasts are being assessed in the market. It is thus important to take into account the assumptions underlying these forecasts. The exporter should assess how different assumptions would affect the exchange rate outcome. If he decides the forecasters are wrong and there is a possibility of sterling rising against the DM, thereby reducing his receipts, he may decide to hedge.

Suppose, for instance, that UK money supply is growing excessively. Forecasters may expect this to feed into future inflation, hence pushing sterling down. This inflationary expectations effect, however, is viewed by the exporter ass being incorrect because he expects a tightening of policy, a hike in interest rates, and therefore a rise in the value of sterling. The exporter may wish to hedge against this possibility, while retaining the flexibility to fine-tune his position in response to changing market conditions.

One reason for constantly monitoring the market is that the exporter may only observe publicly available information with a time lag. Even if this is only an hour, the foreign exchange market will have reacted to the information before the exporter has had time to adjust his expectations.

Whilst the currencies quoted in the markets should instantly reflect all information, this cannot always be true, otherwise it would not be in people's interest to obtain information because it would already be incorporated in the currency. The reason the currency cannot instantly incorporate all information is that there is so much data available and much of it is being updated continuously. In particular, in the light of new information, people review their expectations of future exchange rates and this affects the current exchange rate.

Exporters should adopt forecasts which represent systematic rational behaviour. Looking at their expectations of future variables, and of government policy, they would then have some idea how exchange rates would move over a given period. If the immediate economic outlook is unclear, or if the exporter is uncertain how to interpret current information, one alternative is for him to assume a less risky position by covering his exposures. However, if all indicators point to a sterling fall, any covered position could incur unecessary losses.

Rational behaviour

Engaging in rational expectations analysis should place the exporter in a much stronger position to assess the relative merits of the particular hedging instruments available. If the forecasts do not point to much volatility in the DM/£ rate the exporter may decide that the bid-ask spread in the forward market is too large, or there is a possibility of variation margin requirements in the futures markets becoming excessive. In this case he may decide to choose an option, although options' premiums can also be expensive.

By incorporating rational expectations into his analysis prior to the decision-making process, the exporter will have some idea of where the DM/£ rate will be in December. If all participants adopted the rational expectations approach, the hedging markets would come closer to satisfying the efficient markets hypothesis. By using homogeneous data sets and incorporating all information into their expectations market participants would contribute to reducing the variance of forecasts. This would have an overall stabilising influence on the market thereby helping all decision-makers.

Agents would not be able to outperform the market, in terms of their forecasting ability, on a systematic basis. If one agent consistently "beat" the market it would be because he was acting on superior information, whether based on sophisticated techniques or not, and, by implication, the market would not be taking account of this information. There have been numerous tests of the efficiency of stock, forward, and more recently futures markets. My own recent research on the foreign exchange markets since 1978 and the financial futures markets since 1982 points to efficiency within these markets. The main reasons for this are that information is now more readily available and people have improved the way they form their expectations.

The views expressed are those of the author and not Chase Manhatten Bank.