Information in Financial Asset Prices

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The Information Content of Canadian Dollar Futures Options

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General Discussion

In reply to the discussants' general comments, Watt agreed that there are several problems with the assumptions behind the model used in the paper, and he stressed that the results should be viewed cautiously. Furthermore, he added that they are well aware of the concerns raised by the discussants, but are limited by the model and availability of data.

Mc Manus explained that there are many measures of skewness and kurtosis and, although they tried many such measures, they found that it was difficult to come up with a consistent one. Moreover, their measures were at least consistent enough to record movements, if not absolute levels. However, Mc Manus did acknowledge the need for constructed confidence intervals around the point estimates, and admitted that his group would prefer to use over-the-counter (OTC) data if not for the difficulties in the collection and reporting of this data. He also pointed out that the maturity date stays the same with exchange-traded data, and thus it could be more useful in extracting expectations than OTC data, which have a rolling maturity date.

Finally, Levin pointed out the problems in collecting OTC data, and added that it was because they were well aware of the fact that futures prices are a terrible predictor of future spot prices that the authors put more emphasis on higher moments of the distribution.

Several participants voiced their concerns over the interpretation of the model's results. As Angelo Melino explained, a risk-neutral probability measure is a product of two densities: a density that reflects the market's probability of events occurring; and a density that reflects risk. When we observe changes in this product, we do not know whether it is changing as a result of a change in the market's perception or a correction for risk. In the absence of some prior belief of these two densities, one has to wonder if anything can be said about the market's beliefs on a day-to-day basis.

Frank Milne added that there is a clear identification problem in this model, and that we must first understand how the market forms expectations before we can identify when market expectations change. Finally, once the identification problem is resolved, Charles Freedman's suggestion of converging this model with models of risk premiums could be the next step in this research.

In response to these concerns, Watt acknowledged that the authors are quite conscious of this problem. However, given the limitations of the model, it is impossible to know with certainty whether a change in the density is related to market expectations or risk; thus, it is almost impossible to extract meaningful risk premiums. In these types of models, one has to make an assumption; in this case, they assumed that the agent is risk-neutral. In this environment, any changes in the probability density measure are assumed to be caused by changes in market expectations. However, whether this is a realistic assumption is certainly debatable.

Some participants noted that the forward rate is a poor predictor of the implied future spot rate. Melino pointed out that this risk-neutral probability measure is biasing the density of the market's expectation in some way. The effects are not necessarily isolated to the mean, but could also be affecting the skewness and kurtosis measures as well. Watt agreed that the forward rate is a very poor predictor, but it is the price at which people can trade to offload risk on any particular day. Levin added that he would look at the Philadelphia Stock Exchange options, which use the spot exchange rate instead of the futures price as its underlying asset, in an attempt to address Melino's concern. Levin believes, however, that the results will not change.

Finally, Kevin Clinton asked how the information extracted from these techniques can be useful to a central bank. For example, how should a central bank react if one day they see a large increase in kurtosis? Furthermore, can these techniques be used in a forecasting context? Can an increase in dispersion derived from these techniques systematically lead to an actual increase in the variability of these prices?

Michael Narayan claimed that a central bank can use this information in periods of high volatility to help understand where the potential risk in the market lies.

Watt added that the distributions could be useful in assigning probabilities that, in the view of market participants, given levels would be reached.

Mc Manus emphasized that his group were trying to determine how people's perceptions change, not whether these perceptions were actually realized. However, he admitted that this might be an interesting exercise to perform.