

Preparation of Fan Chart on Economic Growth Using Financial and Real Indicators

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This paper analyzes factors causing changes in GDP growth forecast risks and uncertainties, making overall use of the available information on domestic and overseas financial and real economic conditions. It also proposes a monthly growth fan chart preparation technique to ensure swift identification of changes in forecast risks and uncertainties in line with changing economic conditions based on this information.

The paper first calculates economic condition indicators in four areas, domestic financial and real conditions, and overseas financial and real conditions, using 112 monthly indicators. It then estimates the impacts of specific indicators on the variance, asymmetry, and kurtosis of the growth probability distribution through a multiple quantile regression analysis. Finally, it prepares a fan chart by building a probability density function that reflects the quantile regression estimation results, using an asymmetric power distribution.

Korea's economic growth forecast risks and uncertainties measured through the fan chart are found to differ greatly, depending upon economic conditions. Especially since 2013, the probability of the growth running below the conditional expected value subject to the Bayesian FAVAR model has been higher than 50%, which shows that the possibility of the economy being more sluggish than expected has continued to be high.

The analysis on the influence of specific indicators on the fan chart reveals that improvements in domestic real conditions increase the possibility of rapid economic growth by moving the fan chart upward, and improvements in domestic

financial conditions have greater effects of reducing uncertainties by, for instance, reducing the width of the fan chart. Meanwhile, changes in overseas conditions are analyzed to have limited impacts, unless they are accompanied by changes in domestic financial and real conditions. Using the methods of this paper to calculate changes in the fan chart from October 2016 to December reveals that downside risks to the economic growth forecast increased as domestic real conditions deteriorated, although overseas conditions improved somewhat.

The monthly fan chart presented in this paper is expected to provide the prompt information needed to assess economic developments, adjust the forecast path, and make monetary policy decisions. To improve its accuracy, it is necessary to continuously check if specific indicators are adequately reflecting economic conditions, and to keep looking into the possibility of using additional information variables.

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