Forecast

Sensitivity analysis using alternative outlooks for the global economy

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Finland's recent brisk economic growth is largely a consequence of the upswing in the global economy. The external environment has always played a decisive role in shaping Finland's GDP and, in particular, export growth. Changes in the external environment are, however, always surrounded by a high degree of uncertainty.



The performance of the global economy has always been central to the performance of Finland's domestic economy. Consequently, uncertainties in the global economy also bring uncertainties into any attempt to forecast developments in the Finnish economy. The Bank of Finland's Aino model can be used to gauge the impact that fluctuations in external variables relating to the export market as well as international prices and exchange rates might have on the performance of Finnish exports and, consequently, overall developments in the economy.

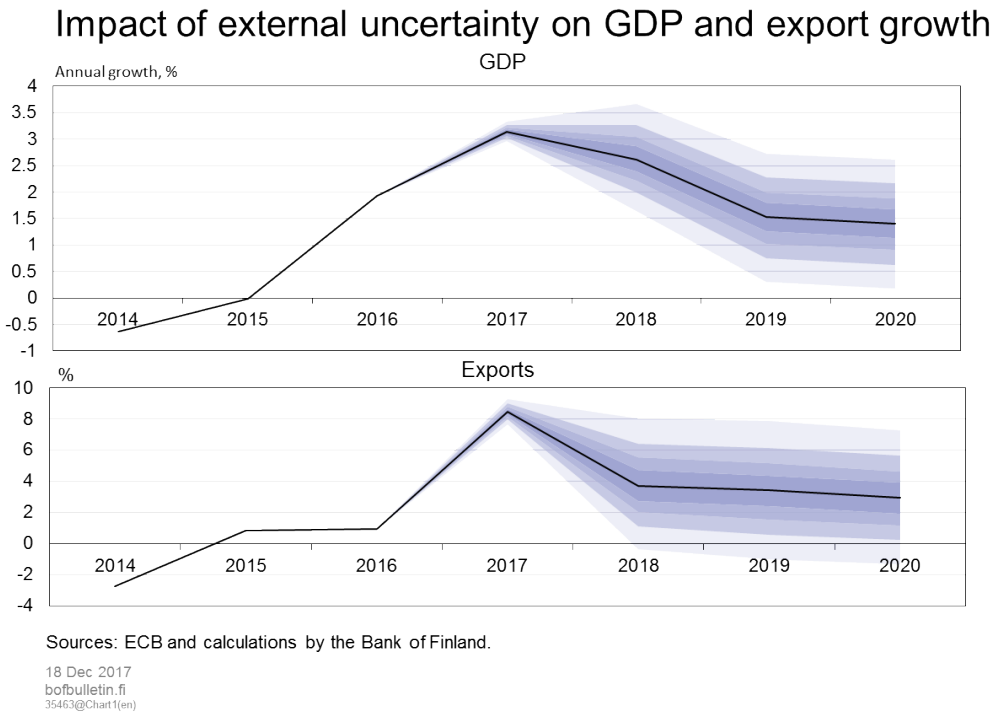
The Bank of Finland forecast considers several important non-domestic factors, including the composition of export markets, exchange rates, international price levels and monetary policy.

Commodities whose prices are closely linked with inflation, such as crude oil, are also factored in. A more detailed analysis of these assumptions can be found in 'Forecast assumptions: Accelerating global growth raises price of oil'.

The calculations in this article constitute a sensitivity analysis, where Finnish export and GDP growth are subject to alternative assumptions concerning the export markets, exchange rates and international prices. Together, these factors provide a good overview of shifts in the global economy, and the joint variation of these variables has been modelled using historical data. This model can then be used to create a large variety of alternative forecast paths for the global economy. Entering these in the Aino model, in turn, produces an equivalent array of alternative forecasts for Finnish export and GDP growth.

The uncertainty surrounding the global economy and its potential impact on the Finnish economy is best illustrated by a fan chart (Chart 1). The outermost interval accounts for 90% of the historical fluctuation of the selected external variables, with approximately 30% (dark blue) accounted for in the innermost interval.

Chart 1.

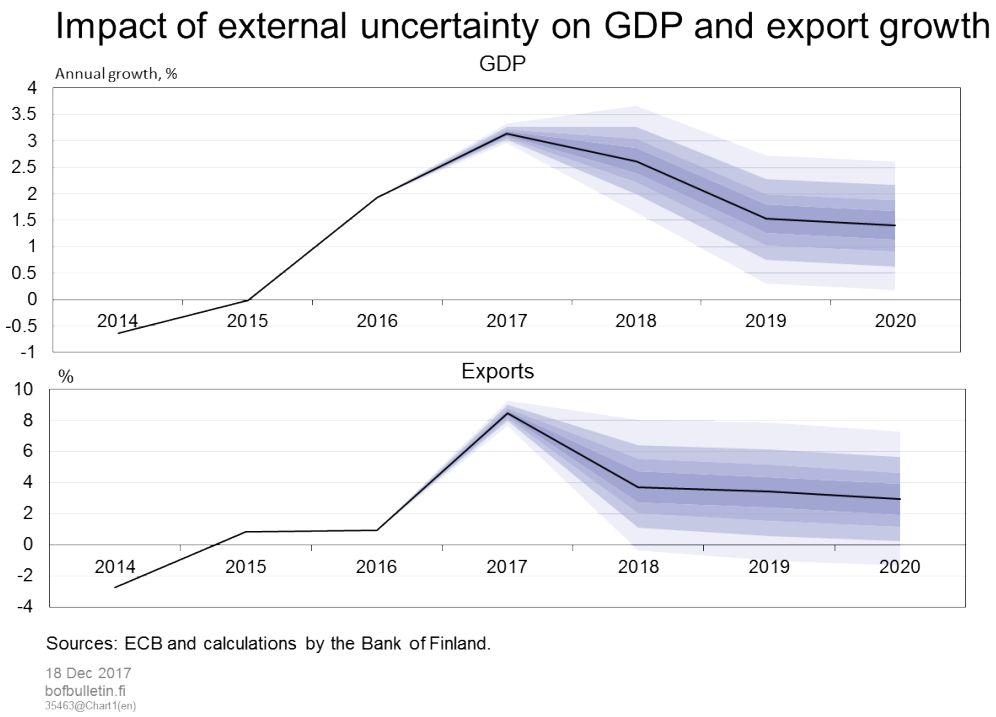


Using the standard forecast assumption as baseline, export growth displays a spread of -2% to almost 10% over the forecast period 2017–2020. Both global export price developments and the trade-weighted exchange rate also exhibit a significant degree of uncertainty. The sum effect of

this manifests itself as uncertainty in GDP growth, which fluctuates between 0.2% and 2.6% (Chart 2).

Exports are even more sensitive to changes in the external environment. This is also illustrated in Chart 2, where export growth sees an even wider spread near the end of the forecast period. Export growth fluctuation moves from approximately -1% to 8%, with the standard forecast assumption as baseline.

Chart 2.



These results reflect the Finnish economy's considerable sensitivity to changes in the external environment and underline how important the global economy is to the performance of a small open economy like Finland. Although the results are, in part, a reflection of the dynamics of the Aino model, the charts do offer a degree of insight into how Finland's export and GDP growth respond to changes in the external environment. However, it is important to remember that the real world economy contains, in addition, many other fluctuating factors that lie outside the scope of this analysis.

Keywords

economic growth, export markets, exports, fan chart, gross national product