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Business Conditions Index

Updates to the BCI

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Introduction

The theoretical framework behind the CBM Business Conditions Index (BCI) is described in Ellul (2016), as an application and extension of the work by Aruoba, Diebold and Scotti (2009). Efforts to improve the BCI, however, are continuous. Changes are intended to better reflect the dynamics of the Maltese economy, and to make the index more understandable for users.

The BCI is re-estimated on a monthly basis, and incorporates all the data updates available until the cut-off date of the CBM *Monthly Economic Update*. Many economic indicators experience moderate to significant backward revisions, which are included in subsequent BCI estimates. These revisions, along with the index's reliance on the Kalman filter, result in progressive revisions in the historic path of the indicator.

The BCI tracks current business conditions at high frequency. The average value of the BCI is zero. Larger positive values imply progressively better-than-average conditions. Increasingly more negative values describe worse-than-average conditions. The BCI may be used to compare business conditions at different times.

The variables included in the original version of the BCI were daily terms structure of interest rates, monthly industrial production, seat-capacity, credit, government taxation revenues, unemployment, an economic sentiment indicator and gross domestic product (GDP).

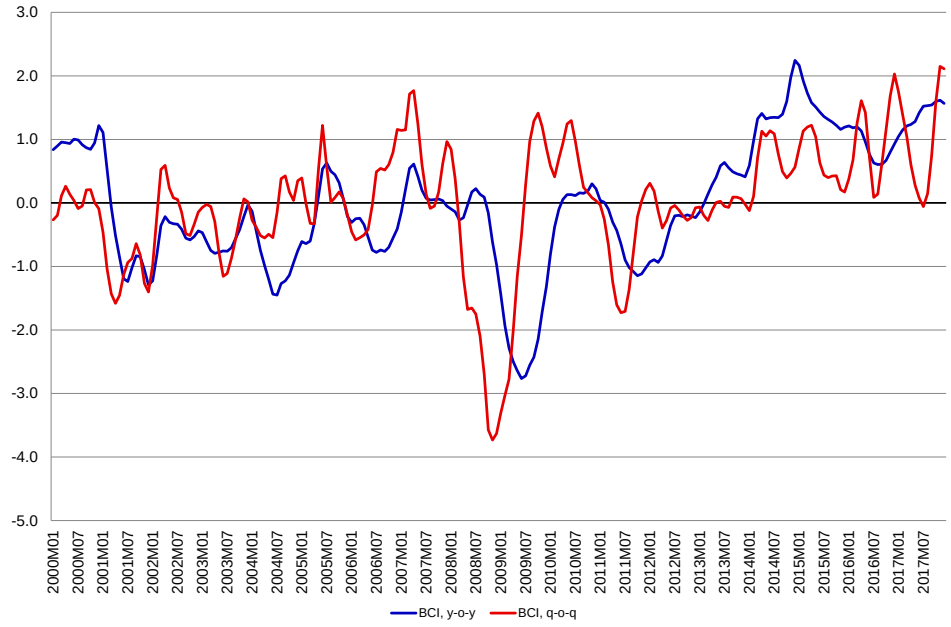
A number of updates have been made to the BCI set-up as of January 2018. The most important by far is the restatement of the index in year-on-year (y-o-y) growth rates, rather than in quarter-on-quarter (q-o-q) terms. Other updates include the removal of a moving average from the unemployment headcount series, and the replacement of the airline seat-capacity variable with tourist arrivals, amongst others.

Growth rates

The BCI was originally specified in terms of quarterly growth rates, in order to accurately gauge turning points and aid in real-time GDP nowcasts. While useful in terms of timing, this approach has the drawback of amplifying volatility present in the data. Consequently, sharp accelerations or decelerations in input variable growth rates lead to sharp swings in the indicator. Such sharp changes may be misleading if not interpreted properly, and couched in terms of levels of economic activity in the previous period.

Thus, in order to present a more understandable measure of economic activity levels, the model was

Chart 1: BCI, (y-o-y, q-o-q)
(standardised)



Source: Author's calculations, Central Bank of Malta

re-defined in terms of year-on-year growth rates (see Chart 1). Of course the new approach also has costs; in particular, looking at quarter-on-quarter growth rates allows a more immediate understanding of turning points. Year-on-year growth rates will compare current conditions with those prevalent a year earlier. This may distort slightly the timing of peaks and troughs. On balance, however, it is apparent that the benefits of moving to the new approach exceed the costs.

Stability and robustness

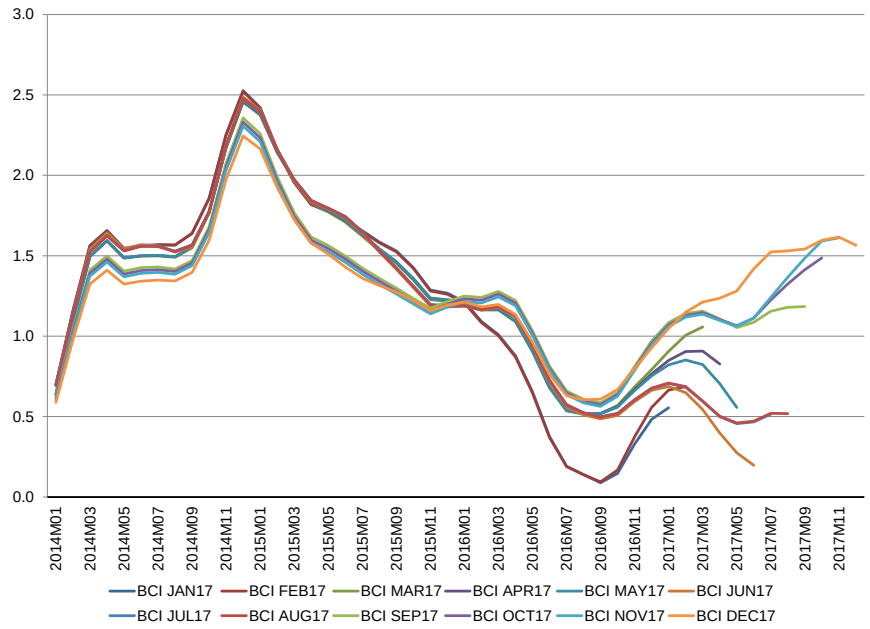
In order to assess the robustness of the BCI under 'true' conditions, a pseudo-real time estimation exercise of the year-on-year version was carried out (see Chart 2). These focused on five successive vintages of GDP data, starting in January 2017 to December 2017. The national accounts vintages refer to the five consecutive versions from 2016Q3 to 2017Q3, inclusive.

While some other variables included in the BCI, such as industrial production, do exhibit some revisions in the back-data, the bulk of the changes to turning points and growth rates relate to GDP. As the model now uses annual growth rates, the variables are no longer seasonally adjusted. Moreover, a moving average on the unemployment variable was removed, while the seat-capacity variable was replaced with tourist arrivals. While counterintuitive in the context of a coincident indicator of the local economy, the use of a moving average for unemployment was deemed necessary to account for a marked decrease in

registered unemployment at the start of 2014. Given the sustained decrease in unemployment seen over the past years, this assumption was relaxed. Finally, tourist arrivals were used rather than seat-capacity to have an explicit tourist industry variable. Further extensions currently being considered allow for the inclusion of further services industry indicators.

Defined in annual terms, the year-on-year version of the BCI progresses in a more stable fashion. The index is not as volatile as in the quarter-on-quarter version. Sharp revisions in GDP growth rates feature in the index's back-data. However the indicator appears to retain its ability to lead changes in economic activity and accurately portray current conditions without sharp swings.

Chart 2: BCI, (y-o-y)
(standardised)



Source: Author's calculations, Central Bank of Malta

Conclusions

The BCI remains a succinct summary of current economic conditions in Malta. Its advantages as a simple and understandable indicator of business conditions in Malta remain, and have been strengthened in this update.

The usefulness of this measure is linked with its availability at high-frequencies, and thus its ability to inform, in a timely manner, its eventual users - be they policymakers or the general public. The changes have been made for the sake of clarity and simplicity.

References

- Aruoba, S. B., Diebold, F.X. and Scotti, C., (2009), "Real-Time Measurement of Business Conditions," Journal of Business Economic Statistics, American Statistical Association, vol. 27(4), pages 417-427.

- Ellul, R., (2016), "A real-time measure of business conditions in Malta," WP-04-2016, Central Bank of Malta Working paper, December 2016.