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A REAL-TIME MEASURE OF BUSINESS CONDITIONS IN MALTA

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BOX 3: A REAL-TIME MEASURE OF BUSINESS CONDITIONS IN MALTA[1]

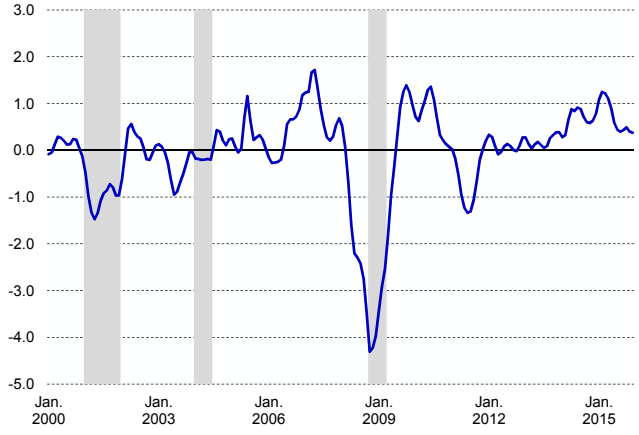
This Box summarises the method adopted to develop a business conditions index (BCI) for Malta.[2] The index is constructed using high frequency indicators to provide timely information about the pace of economic activity close to real time, given the time lags involved in the publication of the National Accounts statistics. The BCI covers the period between 2000 and 2015.

The approach is an extension of a dynamic factor model. Eight different variables are considered in the economic indicator. These are the number of registered unemployed, industrial production, tax revenues, the European Commission's ESI, private sector credit, a variable for the services industry, the term-structure of interest rates, as well as quarterly real GDP.

The index is constructed such that its average value over the sample is zero.[3] A value of zero indicates average business conditions. Positive values imply better-than-average conditions and vice versa. The underlying seasonally adjusted economic indicators mix high and low frequency information, as well as stock and flow data. The index is updated as new data in the underlying components are released.

The BCI is intended to provide a quantitative summary statistic of the latest available economic data. It can also assist policy makers and analysts to filter out the underlying trend in economic activity from the 'noise' inherent in high frequency statistics. As expected, the BCI follows the estimates of the output gap in Malta, as well as a business climate indicator published by the European Commission. It also captures the main turning points of the Maltese business cycle, identified using the Bry-Boschan algorithm (marked as shaded bars in Chart 1).

Chart 1
BUSINESS CONDITIONS INDEX (2000 - 2015)
(standardised)



Source: Author's calculations.

[1] Prepared by Reuben Ellul. The author is a senior economist in the Economic Analysis Office of the Central Bank of Malta. The author would like to thank Dr Valentina Aprigliano (Banca d'Italia) for her comments and suggestions in this study, as well as Dr Aaron G. Grech, Mr Brian Micallef, Mr Silvio Attard, and Mr John Farrugia at the Central Bank of Malta for their helpful comments. The views expressed are those of the author and do not necessarily reflect those of the Central Bank of Malta.

[2] A detailed discussion on the modelling framework is available in Ellul, R. (2016), "*A real-time measure of business conditions in Malta,*" Central Bank of Malta, WP-04-2016.

[3] The index has to be interpreted with caution due to the mean reversal dynamics built within the model. Thus, for example, if the index is high above its mean of zero, its unconditional forecasts will always indicate that it is headed back down. In that case, a more meaningful signal would be if the index were to fall into negative territory.

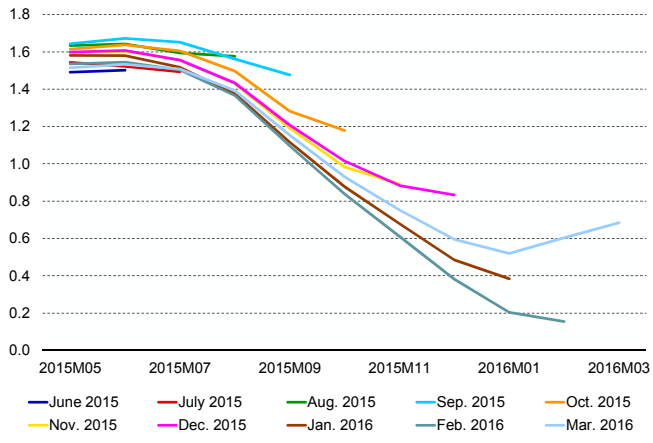
The three turning points are identified in 2001, 2004 and 2008Q4-2009Q1. The BCI captures these effectively, with the 2001 and 2008/9 crises being identified clearly. The 2004 episode also translates as a decrease in economic activity although in this case, business conditions remain close to the average.

In 2001 adverse external shocks hit the electronics industry and tourism, leading to worse-than-average business conditions. In 2004 major restructuring was occurring in a number of sectors in the run up to Malta's accession into the European Union. In late 2008 and early 2009, the global economic and financial crisis caused a severe shock to multiple sectors in the local economy.

Taking the 2008/9 episode as an example, the BCI begins to turn negative in the second quarter of 2008, indicating worsening business conditions. This is confirmed by glancing at GDP figures published in that period. The first GDP vintage for the whole of 2008 indicated a very sudden and sharp slowdown in seasonally adjusted quarter-on-quarter growth rates from late 2007 to 2008.[4,5]

The performance of the BCI is assessed using various stability tests over different specifications and vintages. A sub-set of pseudo real-time assessments indicate that the index was successful in leading GDP developments over 2015. In this subset of assessments, comparison is made between the quarter-on-quarter change in the same vintage of GDP growth and the BCI – with all its variables updated with the corresponding available vintage.[6] With successive vintages, the model updates its estimate of activity in the economy. Chart 2 shows that the resulting estimates are quite stable, while the historical revisions are moderate.

Chart 2
BCI - SUCCESSIVE MONTHLY VINTAGES
(standardised)



Source: Author's calculations.

The BCI is, however, not intended to forecast GDP growth. It aims to measure the latent business conditions implied by the economic statistics. However, in so far as both GDP growth and

[4] The quarter-on-quarter growth rate of GDP in the first full vintage of 2008 slowed down from 1.1% in 2007Q4 to 0.2% in 2008Q1. It turned negative in 2008Q3 and worsened further in 2008Q4.

[5] Further periods of lower-than-average conditions are identified by the BCI, but not by the Bry-Boschan routine. This is due to the restrictive assumptions behind the algorithm.

[6] For example, 2015Q3 GDP data became available in early December 2015, towards the end of 2015Q4. In the pseudo real-time test, the BCI is first updated with available 2015Q3 GDP data, while all other indicators are updated with their respective vintages right up to the month being targeted. Estimates of business conditions in October, November and December 2015 are then calculated. The output is then compared with the GDP estimates of 2015Q4, eventually published in March 2016.

the BCI move with business conditions, one can observe co-movement between the two variables.

This indicator is thus considered to adequately characterise business conditions in Malta, with the ability to assess turning-points in real time. In addition, its stability and timeliness provides analysts and policy makers with an early indication on the current state of the Maltese economy.