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**By Email – warwick.anderson@aer.gov.au**

Dear Mr Anderson

**RE: Regulatory treatment of inflation – inflation expectations**

I refer to your letter of 9 June 2017 seeking our comments on the relative merits of different inflation expectation measures.

The ACCC/AER working paper *Best estimates of expected inflation: a comparative assessment of four methods* examines four measures of long-term inflation expectations:

1. The AER's current method: midpoint of RBA CPI forecasts (where available) and midpoint of RBA inflation target thereafter
2. The long-term bond breakeven rate
3. The fixed-rate on long-term inflation swaps
4. Survey-based estimates of expected inflation

To summarise our response, none of these measures is perfect. The AER's current approach, while fairly transparent and simple, would not capture a change in long-term inflation expectations if that were to occur. Reserve Bank analysis suggests that surveys of professional forecasters can produce good estimates of long-term inflation expectations. However, relying on proprietary data from Consensus Economics may be at odds with the AER's stated aim of transparency. As noted in previous correspondence between the Bank and the AER, market-based measures of inflation expectations have several shortcomings that probably make them unviable alternatives to the current method.

These arguments are explained in more detail below. I have enclosed for your reference a 2016 RBA *Bulletin* article '*Measures of Inflation Expectations in Australia*'. The article provides further detail on the points discussed in this letter.

## **1. The AER's current method for calculating inflation expectations**

The AER currently estimates inflation expectations by averaging the mid-points of the RBA's published forecast ranges for headline CPI inflation and its target range (i.e. 2½ per cent). Since the RBA adopted inflation targeting in the early 1990s, long-term inflation expectations have been well anchored in line with the Bank's target. This approach appears to be congruous with the AER's aim for a transparent, replicable and simple measure. However, we recognise that it has some limitations. Firstly, the mid-points of the published forecast ranges are not necessarily the RBA's central forecasts. Secondly, if actual long-term inflation expectations were to move notably for a sustained period, it would not be valid to use the Bank's target as a proxy.

## **2. Long-term bond breakeven rate**

The long-term bond breakeven rate is a market-based measure of long-term inflation expectations. It is derived by taking the difference in yields between nominal and inflation-indexed Australian Government Securities (AGS), and adjusting for other factors such as the different maturities and coupon frequencies of the bonds. Market participants have strong financial incentives to form accurate expectations for inflation, and are therefore likely to be well-informed. However, some aspects of the nominal and inflation-indexed AGS markets impede the use of this rate as a pure measure of long-term inflation expectations.

Firstly, the yield on the nominal AGS includes an inflation risk premium – that is, compensation for bearing inflation risk. Secondly, the market for inflation-linked bonds is small relative to the market for nominal AGS. As a result, investors may demand a liquidity premium for participating in the inflation-linked bond market – that is, a higher yield to compensate for the risk of market prices moving against them in a substantial way if they try to sell their position. The inflation risk premium biases the long-term bond breakeven rate upward, while the liquidity premium biases it down; there is no guarantee that these biases will offset one another. Furthermore, these premiums are unobservable and probably vary over time, which complicates the interpretation of changes in the long-term bond breakeven rate. Movements in the breakeven rate could arise from changes to long-term inflation expectations, the liquidity premium, or the inflation risk premium. Previous work undertaken by the RBA has found that, at long horizons, much of the variation in the long-term bond breakeven rate is due to changes in the inflation risk premium rather than changes in expectations. I have enclosed this research – *Estimating Inflation Expectations with a Limited Number of Inflation-Indexed Bonds* – for your reference.

## **3. Inflation swaps**

The fixed rate on the ten-year inflation swap provides a second market-based measure of long-term inflation expectations. Like the nominal and inflation-linked bond markets, the inflation swap market benefits from the participation of well-informed participants. Liquidity should theoretically be less of an issue in the swap market than in the bond market. Another benefit of the swap market is the ability to construct an inflation expectations 'term structure' by comparing the rates at different tenors.

However, like the long-term bond breakeven rate, the fixed rate on the ten-year inflation swap is an imperfect measure of long-term inflation expectations. As with the nominal AGS, the fixed rate on inflation swaps includes a time-varying inflation risk premium, which biases the measure upward. Also, despite being off-balance sheet instruments, swaps carry capital and leverage implications for prudential regulatory purposes. Balance sheet space is therefore a liquidity constraint in this market. Furthermore, the market for inflation swaps is not particularly active or representative of broader market views. In the first half of 2016, there were on average just six transactions a week at the ten-year tenor. Individual transactions can therefore move the market price significantly and the daily rates are often based on quotes rather than actual transacted prices. The swap market is also dominated by a few participants, so it may not be representative of broader inflation expectations.

## **4. Surveys of professional forecasters**

The RBA monitors three surveys of long-term inflation expectations: those of union officials, local market economists, and the respondents to Consensus Economics' survey. The survey of union officials and the

survey of market economists measure expectations of average annual inflation over the next five to ten years, while the survey from Consensus Economics captures expectations of average inflation for between six to ten years. Long-term surveys of expectations are a good way to estimate long-term inflation expectations since they should not be influenced by temporary deviations or financial market developments, and because the respondents are well-informed. They should also react to any unanchoring of expectations. Internal work has found that the Consensus Economics survey is the measure of long-term expectations that best abstracts from near-term influences on inflation. The main drawback of the Consensus Economics survey is its frequency; long-term expectations are only surveyed twice a year (in April and October). Furthermore, the information in this survey is proprietary, which may restrict replicability.

Should you have any further questions, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Luci Ellis', with a stylized flourish at the end.

Luci Ellis  
Assistant Governor – Economic

Encl: Measures of Inflation Expectations in Australia; Estimating Inflation Expectations with a Limited Number of Inflation-Indexed Bonds.