

APPENDIX

What drives bond yields – Part 2: Trends

AUTHOR: MICHAEL ANTHONISZ, QTC CHIEF ECONOMIST

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This appendix provides further technical detail to [What drives bond yields – Part 2: Trends](#).

Section A1: Variable descriptions

Table A1 describes the variables used to estimate the indicators of the sub-components for 3-year Australian Government bond yields. Graphs A1 to A4 show what these look like when these are scaled to have the same mean and standard deviation as the RBA's Hambur & Findlay (2018) estimates.

Table A1: Variables used to estimate indicators of Australian Government 10-year yield sub-components

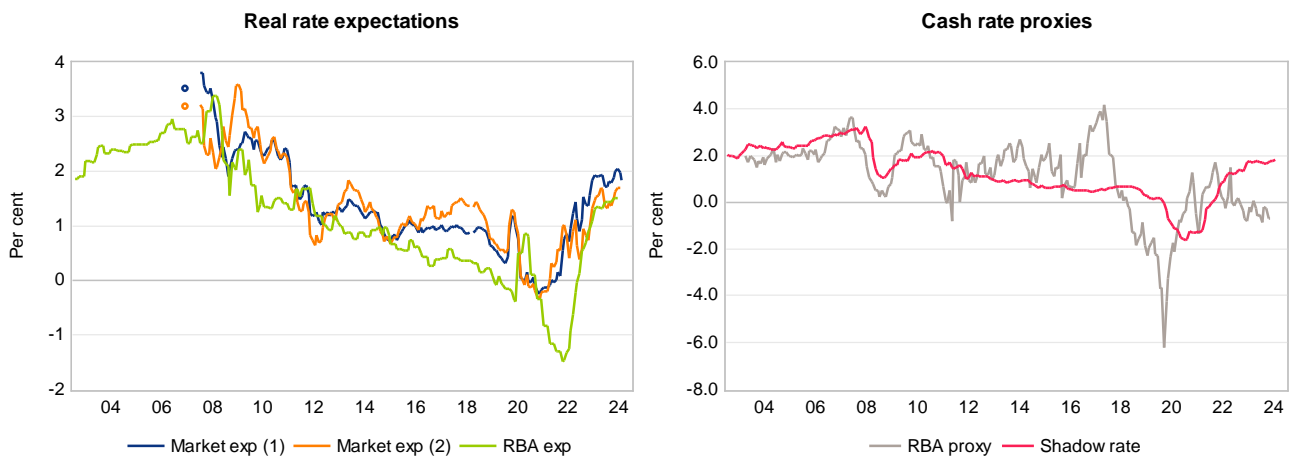
Average short-term expected real rates

Series	Description
Market based expectations (1)	2-year OIS less 2-year inflation swap
Market based expectations (2)	2-year forward rate less 2-year inflation swap
RBA expectations	Inertial Taylor Rule cash rate estimate based on 2-year ahead RBA unemployment rate and inflation forecasts less the RBA 2-year ahead inflation forecast
Cash rate proxies	Shadow cash rate from Leo Krippner Macro Finance Analysis.
	An index which places weight on the different leading, coincident, and lagging indicators the RBA might look at when considering policy settings

Source: Bloomberg, Macrobond, QTC Economics & Research

Graph A1: Variables used to estimate average short-term expected rates

Component series - Average short-term expected rates



* Scaled to have the same mean and standard deviation as the RBA's Hambur & Findlay (2018) estimates

Sources: QTC Economic Research

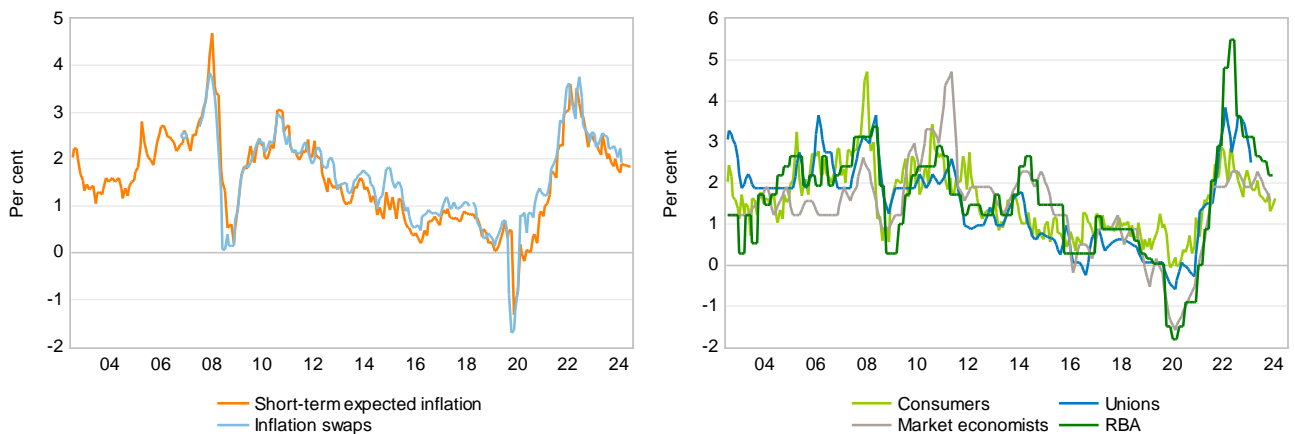
Expected inflation

Series	Description
Short-term inflation expectations	Common factor of short-term measures of inflation expectations as per the technical appendix to Anthonisz (2021)
Inflation swaps	2-year zero coupon inflation swaps
Consumer inflation expectations	The simple average of ANZ consumer inflation expectations as well as the Melbourne Institute 30 per cent trimmed mean and (0 per cent to 5 per cent) weighted median measures
Union inflation expectations	Union inflation expectations
Market economist inflation expectations	Market economist inflation expectations
RBA inflation forecast	Rolling two-year ahead RBA inflation forecast

Source: Bloomberg, RBA, Macrobond, QTC Economics & Research

Graph A2: Variables used to estimate expected inflation

Component series - Expected inflation



* Scaled to have the same mean and standard deviation as the RBA's Hambur & Findlay (2018) estimates

Sources: QTC Economic Research

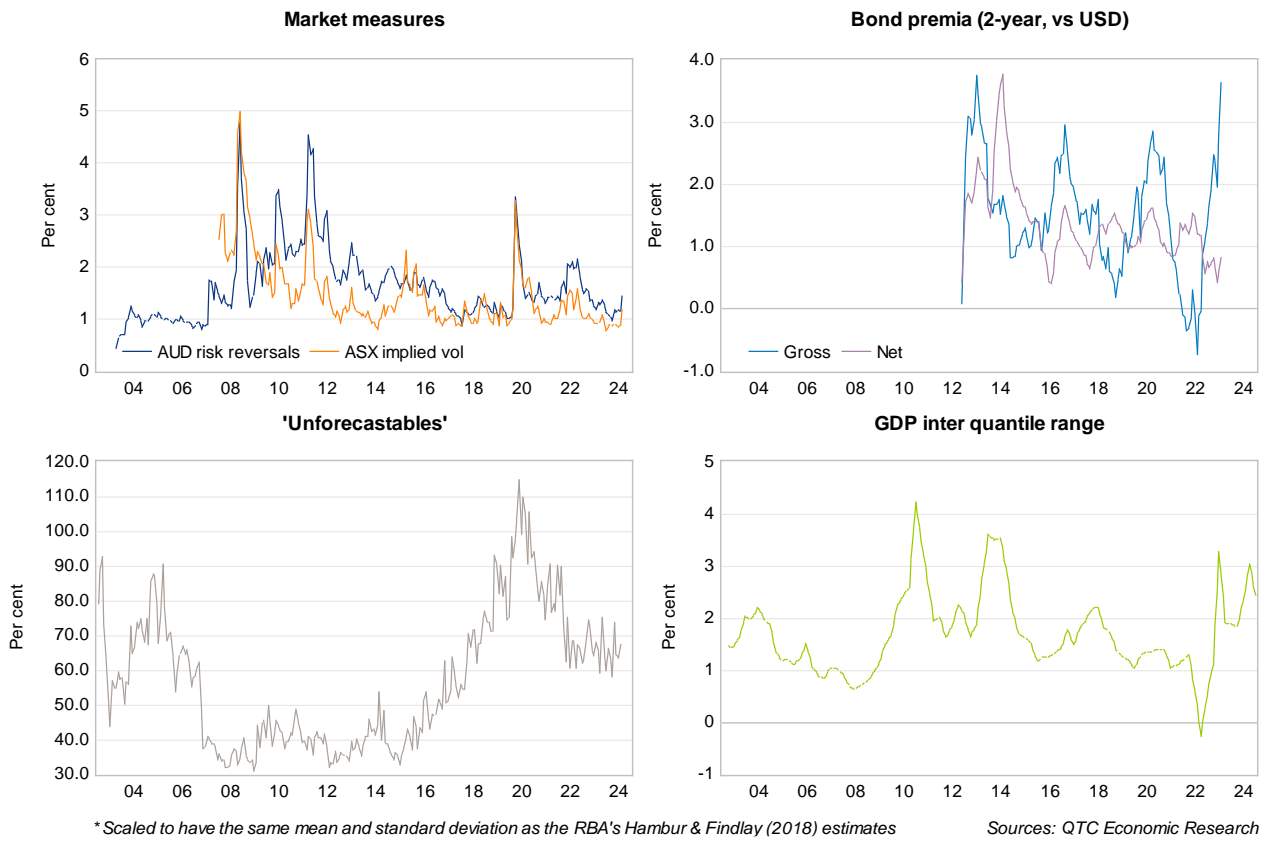
Real interest rate risk premium

Series	Description
AUD risk reversals	3-month 25 Delta risk reversal on AUD/USD
ASX implied vol	30-day expected volatility on ASX
Bond premia (AUD bonds)	2-year gross and net premia for AUD bonds vs USD bonds (calculated as per Du et al (2017))
'Unforecastables'	The number of stories on Bloomberg which include any of the following words: 'risk', 'uncertainty', 'tensions', 'geopolitical risk', 'infection' scaled by the total number of news articles
GDP interquartile range	The difference between estimated growth rates at the 95th and 5th percentiles of the distribution of two-year ahead GDP forecasts
Economic policy uncertainty	As per https://www.policyuncertainty.com/
Economic activity uncertainty	Based on the simple average of the stochastic volatility of 15 month ahead forecast errors for the unemployment rate and GDP (based on the approach outlined in Jurado et al (2015))
Monetary policy uncertainty	Based on the simple average of the stochastic volatility of 15 month ahead forecast errors for the unemployment rate, GDP and inflation from market economists and the RBA as well as of zero coupon forwards and OIS (based on the approach outlined in Jurado et al (2015))
Monetary policy shocks	Calculated as per page 7 of Bishop & Tulip (2017)
Fiscal policy shocks	Forecast errors for the Australian Government's fiscal balance
Market interest rate forecast errors	The net of the two-year ahead forecast errors of zero coupon forwards and inflation swaps for headline inflation
Economist interest rate forecast errors	The net of the two-year ahead forecast errors of economists for the RBA cash rate and headline inflation
Model interest rate forecast errors	The net of the 2-year ahead forecast errors of a model for the cash rate and headline inflation
GDP forecast error	18-month ahead market GDP forecast error for the RBA and for market economists
UER forecast error	18-month ahead market unemployment rate forecast error for the RBA and for market economists

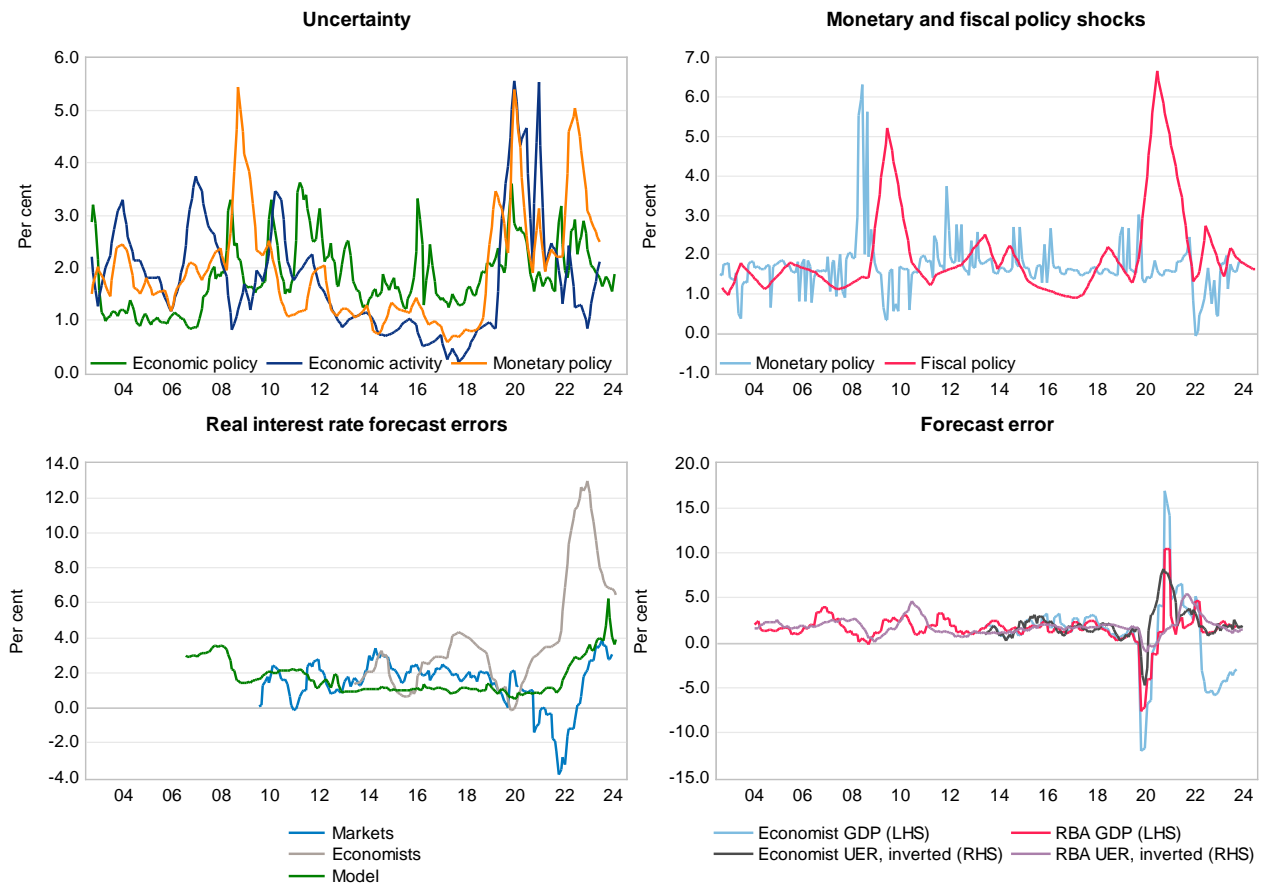
Source: Bloomberg, Macrobond, QTC Economics & Research

Graphs A3a & A3b: Variables used to estimate the real interest rate risk premium

Component series - Real rate risk premia (1)



Component series - Real rate risk premia (2)



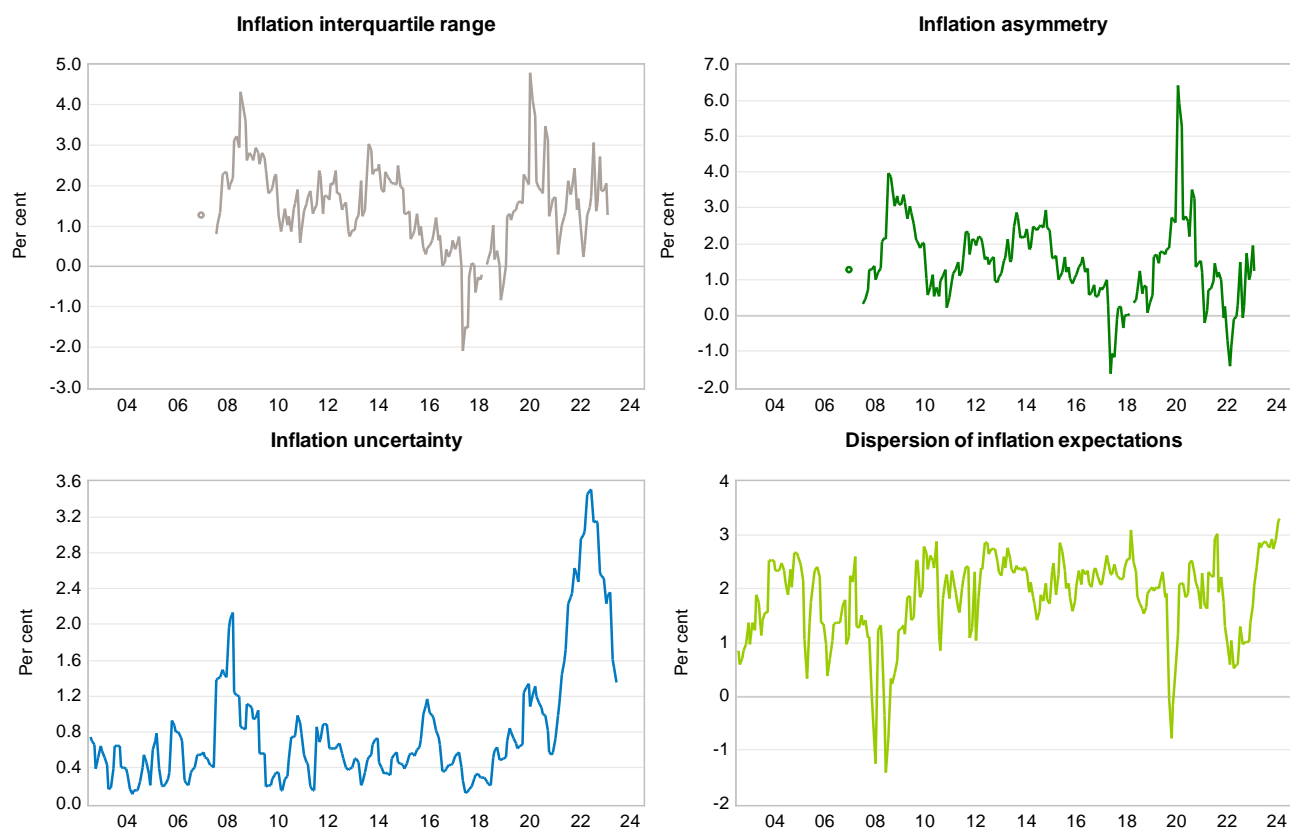
Inflation risk premium

Series	Description
Inflation inter-quartile range	The difference between estimated growth rates at the 95 th and 5 th percentiles of the distribution of two-year ahead inflation forecasts
Inflation asymmetry	The simple average of the difference the 95 th and 50 th percentile and the 50 th and the 5 th percentiles for two-year ahead inflation forecasts from consumers, unions, market economists, the RBA, inflation swaps and a model
Inflation uncertainty	Average of 18-month ahead forecast errors for headline inflation
Dispersion of inflation expectations	The difference between the highest and lowest inflation expectations of consumers, unions, market economists, the RBA, inflation swaps and a model
Inflation swaps less inflation expectations	The difference between two-year ahead expected inflation from inflation swaps and the average of that for consumers, unions, market economists, the RBA, inflation swaps and a model
Economist CPI forecast error	18 month forecast errors for inflation for market economists
RBA CPI forecast error	18 month forecast errors for inflation for the RBA

Source: Bloomberg, RBA, Macrobond, QTC Economics & Research

Graphs A4a & A4b: Variables used to estimate the real interest rate risk premium

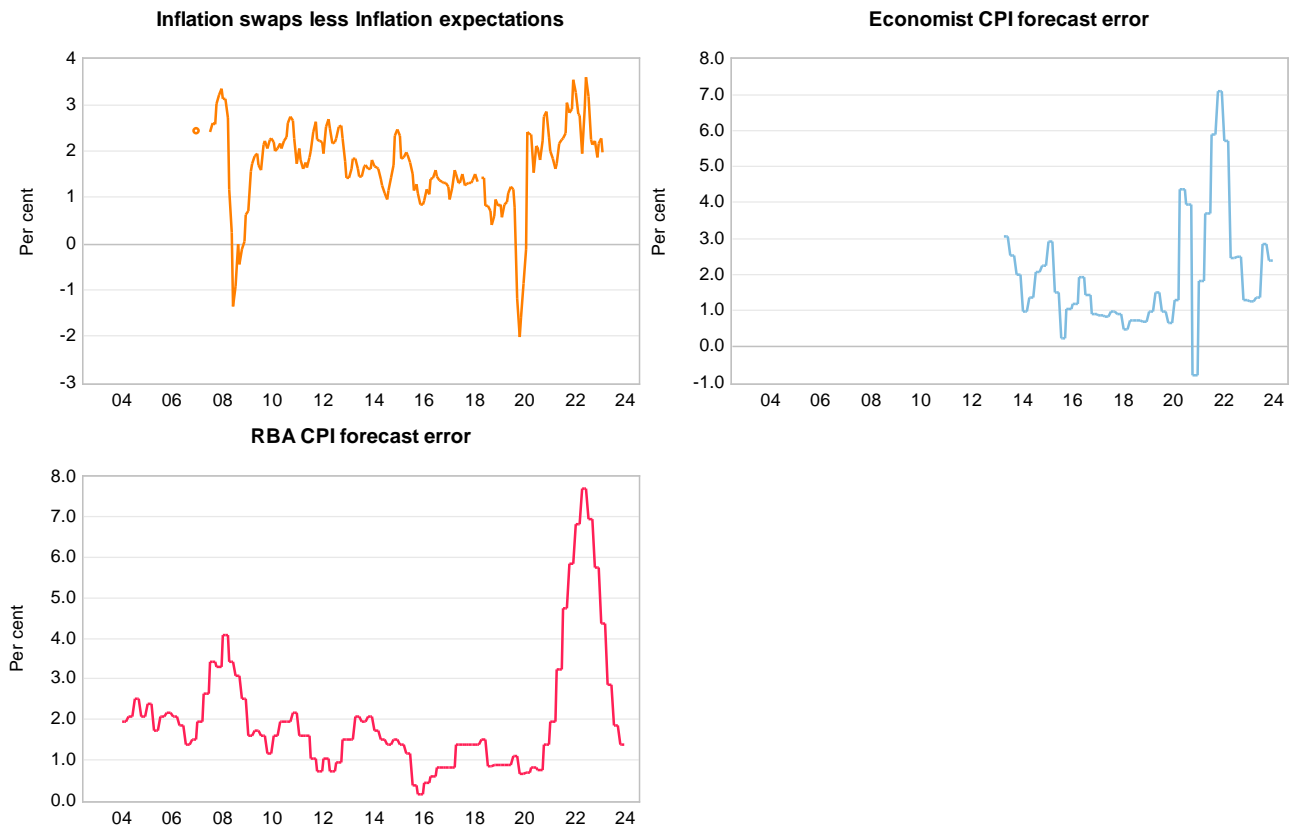
Component series - Inflation risk premia (1)



* Scaled to have the same mean and standard deviation as the RBA's Hambur & Findlay (2018) estimates

Sources: QTC Economic Research

Component series - Inflation risk premia (2)



* Scaled to have the same mean and standard deviation as the RBA's Hambur & Findlay (2018) estimates Sources: QTC Economic Research

Section A2: Method

These variables were made stationary, standardised and, if required, smoothed prior to being included in the analysis. The Kalman Filter was used to separate the signal from noise across these series which are being used to proxy for the different sub-components of bond yields.

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