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AUSTRALIAN MARKETS WEEKLY

How big will the RBA's QE program have to be?

National Australia Bank

In this issue

Analysis: How big will the RBA's QE program have to be?

- The RBA is widely expected to ease policy further in November by cutting the cash rate to 0.10%, along with the 3-year yield target (YCC) and the TFF rate. We also expect the RBA to announce QE purchases in the 5-10 year area of the curve.
- While there remains uncertainty over what will be announced in regards to QE, our analysis published in a cross-market note on Friday suggests the RBA would need a QE program of $143bn in order to return to full employment and inflation to target (the total balance sheet expansion would be $277bn when incorporating the TFF expected $114bn drawdown and $20bn in purchases for keeping yields at the 3yr YCC target).
- In estimating the size of a potential QE program we used three approaches:
  - Using the RBA's MARTIN macroeconomic model and international comparisons, NAB estimates that the RBA will have to expand its balance sheet by 14% of GDP (or $277bn) to achieve its target of full employment and target inflation. Taking into account TFF expansion and YCC purchases gives a QE program of $143bn.
  - Looking at the relative balance sheet expansion of central banks since the start of the COVID-19 pandemic. To match the increase in balance sheets since the pandemic would require an expansion of $275bn, and to match the total overall balance sheet size requires $491bn. Taking into account TFF/YCC, suggests QE of $141bn-357bn.
  - Looking at bond buying programs by the Fed, BoC and RBNZ, which suggests the RBA would need to get overall holdings at or above 30% of outstandings.

The week ahead

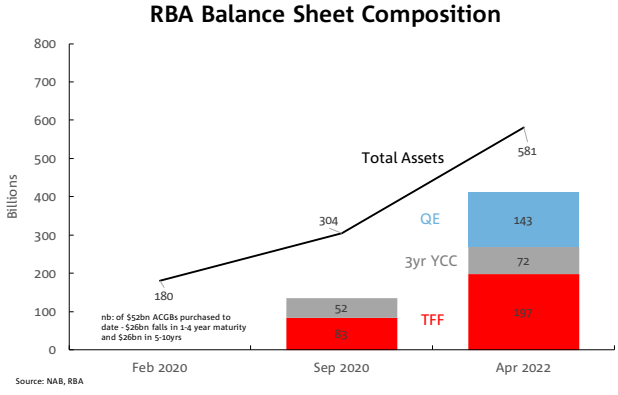
- **Australia:** CPI is on Wednesday and while historically this has been the most market sensitive piece of data for Australian markets, is unlikely to be this time given the RBA's explicit forward guidance. NAB forecasts Headline CPI will rise a sharp 1.9% q/q, reversing last quarter's 1.9% fall, due to the expiry of pandemic-related government subsides, as well as petrol prices. Annual Headline CPI though will remain subdued at 1.0% y/y. Trimmed Mean (core) is expected to rebound 0.6% q/q and 1.4% y/y.
- **International: NZ:** ANZ Business Survey is Thursday. **US:** Now just eight more days to the Presidential election where Biden continues to lead. Markets are focused on the chances of the Democrats gaining a Senate majority and the implications for spending, inflation and yields. As for data, Q3 GDP is on Thursday and the Atlanta Fed's GDP Now is pointing to growth of 35.3% annualised (equivalent to 7.9% q/q), partially reversing last quarter's -31.4% contraction. **EU/UK:** ECB meets Thursday and while no change is expected a steer to more QE in December is possible. The Euro Area also has Q3 GDP figures, with consensus at 9.4% q/q from -11.8% in Q2. UK-EU trade negotiations also continue, although a deal may not be forthcoming until November.

Key markets over the past week

	Last	% chg week		Last	bp/% chg week
AUD	0.7136	0.7	RBA cash	0.13	0.0
AUD/CNY	4.76	0.2	3y swap	0.09	0.0
AUD/JPY	74.7	0.0	ASX 200	6190	-0.6
AUD/EUR	0.602	0.1	Iron ore	112.9	-2.2
AUD/NZD	1.066	-0.3	Brent oil	41.3	-3.2

Source: Bloomberg

Chart of the week: RBA QE would see the b/s grow



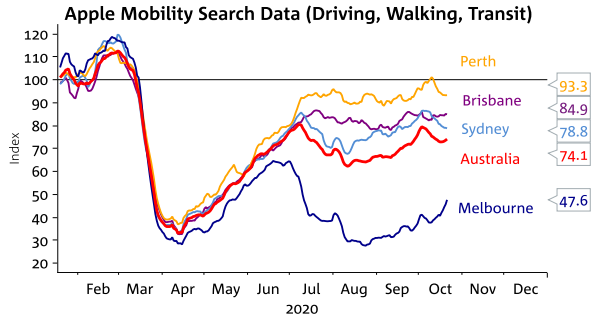
Global Markets Research Team

Tapas Strickland, Director, Market Economics

Victoria closer to comprehensive opening

Victorian virus numbers remain at low levels with no new cases over the past 24 hours and the 14-day moving average for metro Melbourne falling to 3.6, well below the prior reopening threshold of 5. While a comprehensive reopening was delayed, restrictions are likely to ease sometime this week, with the question now being how quickly activity bounces back. The mild easing of restrictions to date has already seen a surge in search directions according to Apple, while recent consumer confidence figures have seen a sharp jump in Victoria and suggests less scarring than initially feared.

Chart 1: Melbourne mobility bouncing back



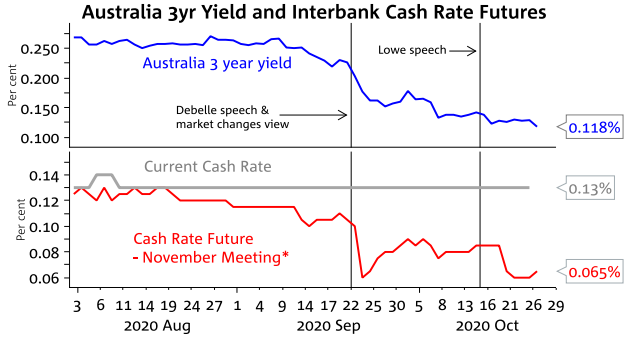
*Smoothed using a weekly moving average
Source: National Australia Bank, Apple

RBA rate cut pricing extends

Markets have continued to extend their pricing for further policy easing at the upcoming November meeting. NAB continues to see the RBA cutting the cash rate, 3yr YCC and the TFF rate by 15bps to 0.10%. We also expect the RBA to begin outright QE in the 5-10 year space – how large that QE program is expected to be is the topic of this week's Weekly (see next column).

As for market pricing, November cash rate futures rallied further in the wake of Assistant Governor Kent's remarks last week that it wouldn't be unexpected if BBSW were to "pop below zero" (see The Stance of Monetary Policy in a World of Numerous Tools) . While the headline cash rate is widely expected to be cut to 0.10% (along with 3yr YCC and TFF), there has been more uncertainty over the deposit rate on exchange settlement accounts; Kent's remarks have been interpreted could as suggesting the deposit rate could be cut close to zero (Chart 2).

Chart 2: Markets well priced for a 15bp rate cut to 0.10%



* 100 - price. Interbank futures are the average of the cash rate over the month
Source: National Australia Bank, Bloomberg

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Analysis: How big will the RBA's QE program have to be?

(*Note: this piece was first published on Friday in a cross-market note. Email Tapas.Strickland@nab.com.au if you would like a full copy which includes an appendix*).

The RBA has signalled strongly that it will soon commence a program of outright QE bond purchases aimed at 5-10-year maturities. NAB expects this to be announced at the November RBA Board meeting on Tuesday 3 November (2.30PM AEDT). At the same time, we expect the official cash rate, the 3-year yield target and the rate on the term funding facility (TFF) to be reduced to 0.1% from 0.25%. That said, NAB's view remains that fiscal policy is best placed to support the recovery in the economy.

We are not expecting yield curve control (YCC) to be extended to 5-years as: (i) the RBA has tied YCC to forward guidance, where it does "not expect to be increasing the cash rate for at least three years"; and (ii) the RBA has been signalling that it will conduct outright QE bond purchases supplementary to the 3-year yield target, which will be directed to the longer-end of the curve.

It's also worth noting that the RBA recently revised its forward guidance to state interest rates will not be increased until actual inflation is sustainably within the 2-3 percent target, which in turn will require the return to a tight labour market. This will take some years, reinforcing the RBA's outlook for an extended period where interest rates do not increase.[1]

Using a variety of approaches, NAB estimates that the RBA could announce a 5-10 year QE program of $141-357bn after its Board meeting on Tuesday 3 November, though we would expect a number at the lower end of this estimated range.

We did this by:

- Using the RBA's MARTIN model to quantify the expansion in the balance sheet required to return the unemployment rate to an assumed post-pandemic NAIRU of 5%;
- Looking at the balance sheet expansions of other central banks since the pandemic compared to the RBA's expansion; and
- Looking at the size of the Fed, BoC and RBNZ's bond buying programs.

Estimating the size of a QE program

(1) Using RBA's Martin Model

The Reserve Bank has been clear that it views reducing unemployment as a "national priority", with the rate of unemployment now forecast by the Government and NABD to peak around 8%. Governor Lowe recently stated that interest rates would remain low until unemployment reached a level "consistent with inflation

[1] The Recovery from a Very Uneven Recession – Lowe, Oct 2020

being sustainably within [..] target". In other words, the RBA is aiming for full employment, which it expects will take at least three years to achieve.

In our analysis, we assume the RBA is aiming for an unemployment rate of 5%, a little higher than the 4.5%

NAIRU, or full employment rate, estimated in late 2019. This aligns with recent comments from Governor Lowe that the NAIRU has likely risen in the pandemic. As such, the aim of additional monetary easing will be to help close this 3pp unemployment gap.

Based on government forecasts from the 6 October budget, monetary and fiscal stimulus announced to date should reduce the unemployment rate by 2pp, to 6%, by June 2023. We take these forecasts as given - our own forecasts expect unemployment to reach 6% at the end of 2022 - although we acknowledge the large uncertainty around these forecasts. We estimate that monetary stimulus contributes 1.1pp to the total impact; fiscal stimulus accounts for the remaining 0.9pp:

- We update our earlier work on QE from the note "Analysing the potential impact of QE" to estimate that RBA monetary stimulus to date will reduce the unemployment rate by 1.1pp. This uses the Reserve Bank's MARTIN macroeconomic model to show rate cuts of 125bp since early 2019 should reduce unemployment by 0.7pp. To capture the impact of the RBA's balance sheet expansion as part of its yield curve control (YCC) and term funding facility (TFF) we use estimates from international experience. This suggests balance sheet measures to date should reduce unemployment by 0.4pp.

- For fiscal policy we assume temporary fiscal measures announced prior to the 6 October budget – notably JobKeeper – have already had their impact; limiting the peak in unemployment to 8%. For the impact of the government's recovery package, we use the government's forecast for unemployment to fall to 6%, which should account for announced fiscal stimulus and monetary easing to date. Given that monetary stimulus to date should reduce the unemployment rate by 1.1pp in three years, we attribute the further 0.9pp reduction to fiscal stimulus.

To close the remaining 1pp unemployment gap, we estimate that the RBA would need to expand its balance sheet by $277bn or 14% of GDP to further reduce the unemployment rate to 5%:

- Using the relationship between GDP and unemployment within the MARTIN model, GDP needs to rise by 2.8% to close the remaining 1pp unemployment gap.

- Based on international experience, this would require the RBA to undertake QE/buy bonds worth 14% of GDP, with a range of estimates of 7 to 42% of GDP. GDP is currently $1.98 trillion, so this equates to bond purchases worth $277bn, with a large range of $139 - 821bn.

Increasing the RBA's balance sheet by $277bn seems quite large. However, note that banks drawing from the TFF also expands the RBA's balance sheet. To date, banks have drawn $83bn, but an additional $114bn remains. Subtracting this $114bn from the total additional $277bn suggests total bond purchases of $163bn is required to achieve the (assumed) full employment level of 5% (or a QE program of around $143bn once we take away an assumed further $20bn of 3-year purchases for YCC).

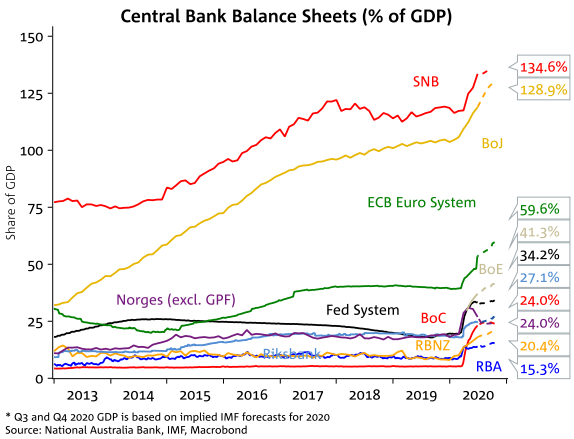
(2) Using relative balance sheet comparisons

Another lens to assess the potential size of an RBA QE program is to look at the relative expansion of central bank balance sheets since the COVID crisis began. In a recent speech, Governor Lowe noted: "*In the past, interest differentials provided a reasonable gauge to the relative stance of monetary policy across countries. Today, things are not so straightforward, with monetary policy also working through balance sheet expansion. As I noted earlier, our balance sheet has increased considerably since March, but larger increases have occurred in other countries. We are considering the implications of this as we work through our own options.*" (see Lowe 2020: The Recovery from a Very Uneven Recession).

Of course, there are many factors that also need to be taken into account, including the impact of the virus on a particular economy and the amount of fiscal easing (Thankfully, Australia has been relatively less impacted by COVID-19, while at the same time the Government has implemented relatively large fiscal support packages).

The RBA October Board Minutes also noted "*the larger balance sheet expansions by other central banks relative to the Reserve Bank was contributing to lower sovereign yields in most other advanced economies than in Australia. Members discussed the implications of this for the Australian dollar exchange rate.*" (see RBA Board Minutes October 2020).

Chart 3: RBA's b/s expansion low relative to peers



* Q3 and Q4 2020 GDP is based on implied IMF forecasts for 2020
Source: National Australia Bank, IMF, Macrobond

Change versus levels – how to measure?

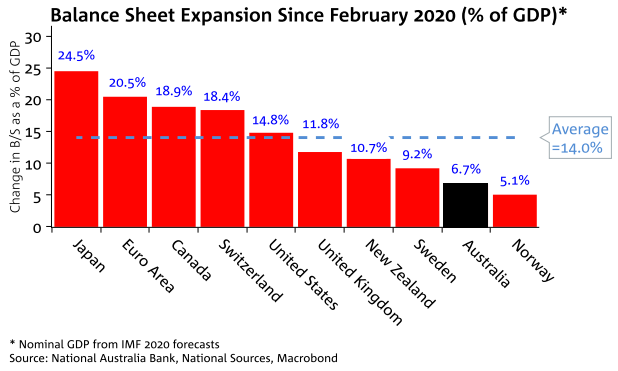
To better align the RBA's balance sheet to the expansions seen by other central banks, the RBA could then either: (1) set its QE program to try and match the balance sheet expansions seen since the pandemic; or (2) try and match

the current absolute level of other central banks' balance sheets relative to GDP.

The latter seems less relevant as the prior expansions reflected the fact that the Australian economy was considerably less impacted than other economies in the aftermath of the GFC. The relative impact of the virus and size of fiscal spending would also be relevant here too. That said the RBNZ and BoC appear to be pursuing programs more akin to matching the total balance sheet size than the increase in the balance sheet since the pandemic struck.

Balance sheet expansion since the pandemic
Chart 4 shows the change in central bank assets as a share of GDP from pre-pandemic February 2020 levels. Australia has expanded its balance sheet by around 6.7% of GDP, well below the global average of 14.0%, which is also where the US Fed approximately sits. The differential accordingly is 7.3pp of GDP, which amounts to around $141bn on top of the balance sheet expansion seen to date.

Chart 4: RBA's b/s expansion is around half of peers



* Nominal GDP from IMF 2020 forecasts
Source: National Australia Bank, National Sources, Macrobond

Taking into account ongoing QE programs
The above analysis suggests that through the lens of bringing the RBA's balance sheet to be more comparable to the rest of the world, either since the pandemic struck or the overall balance sheet size, is for balance sheet expansion of $141-290bn.

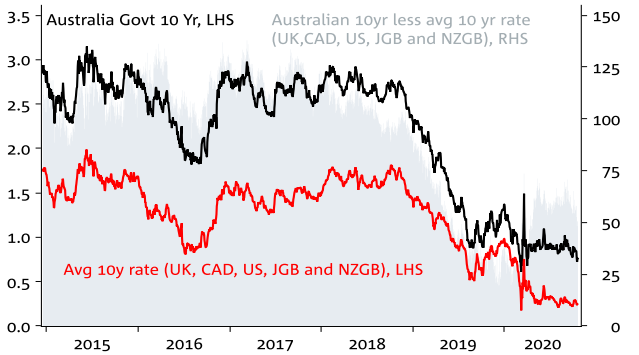
Importantly, this figuring doesn't say anything about what is needed to account for the ongoing expansion of central bank balance sheets globally.

In the next section we take a closer look at the bond buying programs for the RBNZ, BoC and Fed (taking into account what has already been purchased and the potential path of purchases over the next 18 months). Accounting for ongoing expansion by other central banks, this analysis suggests the RBA would need to increase its balance sheet by some $275 491bn (the latter figure matching the total overall balance sheet size). Some of that expansion will come through the TFF which currently has room for another $114bn in drawing and we assume that the RBA will undertake a further $20bn of YCC 3-year bond purchases. Taking these into account suggests purer QE bond purchases in the range of $141-357bn. We'd expect initially the RBA to probably favour the lower end of the range – ie matching the increase in the balance sheet since the pandemic began.

(3) Relative size of bond holdings

As noted in the above section the RBA has been looking at the relative size of its balance sheet but also the composition of bond purchases with Governor Lowe recently questioning whether the absence of the RBA purchasing bonds in the 10-year part of the Australian sovereign curve was a factor keeping the Australian 10-year bond yield above that of most advanced economies.

Chart 5: AU 10y bond vs. average of its peers



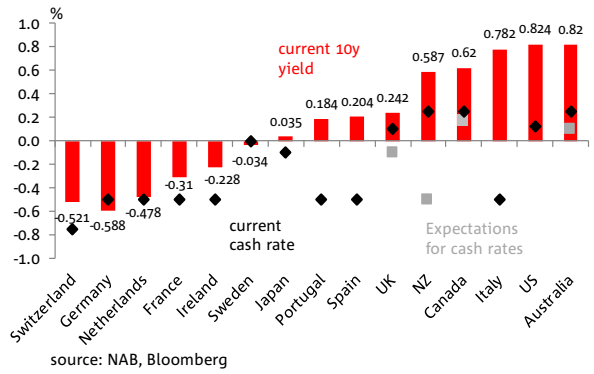
Source: National Australia Bank, Macrobond

Chart 5 looks at the Australian 10-year bond yield relative to the average of our peers (ie the 10-year bond yield for Bunds, JGBs, CAD, NZGBs and UST). Since the pandemic and associated central bank responses, the Australian 10-year bond yield has traded around 60bps higher than the average of its peers (it reached a spread low of 25bps in late 2019). In the past fortnight the spread has narrowed to around 50bps on expectations of a lower cash rate and the RBA purchasing bonds in the 5-10-year part of the curve.

While the Australian 10-year bond yield remains above the average, as Chart 6 illustrates, it is now in line with its US equivalent. It remains some 20bps above the NZ and Canadian 10-year bond yields. While the Fed, BoC and RBNZ still have positive cash rates, they are all conducting QE (across the entire sovereign curve) and were aggressive in the initial stages of bond purchasing. In addition, the RBNZ is pointing to negative rates next year while the BoC has not ruled negative rates out.

With the RBA still pushing back on negative rates, in the absence of the RBA's QE program being greater in magnitude than New Zealand's or Canada's (and also frontloaded), it is unlikely that the Australian 10y bond yield will make a sustained move below the NZ and Canadian 10y bond yields and a margin above is likely.

Chart 6: Global 10 year bond yields



source: NAB, Bloomberg

So, what do the Fed, RBNZ and BoC bond buying programs look like? Below we look at the current programs and assume these expansions go for 18 months:

- The Fed is currently expanding its balance sheet by $120bn a month, comprising $80bn in Treasury and $40bn in Agency MBS (see NY Fed for details). Assuming the program continues for another 18months, then total purchases could amount to $2.160tn or 10.4% of GDP. Alternatively, if we just include Treasury purchases, this amounts to $1.440tn or 6.9% of GDP. The Fed currently owns around 30% of Treasury notes and bonds outstandings and under expectations of increased bond supply is expected to increase volume of purchases (so maybe maintain holdings around this level).
- The BoC is currently expanding its balance sheet by a minimum of $5bn a week across the yield curve, (see BOC for details). The BoC could get its holdings close to 30% of bonds outstandings by mid next year and higher by June 2022 if the current run rate is maintained.
- The RBNZ is also currently expanding its balance sheet and has purchased $36.9bn of bonds (across NZGBs, linkers and LGFA) so far with a maximum cap on purchases of $100bn (there is also an additional cap of 60% of NZGB outstandings). Should the RBNZ fulfil the nominal cap in an 18 month period then that would result in an additional $63.1bn of purchases worth 20.1% of GDP (or 60% of outstandings). The RBNZ currently owns 34% of outstandings but for bond lines in the 10-year part of the curve it is up at around 40-50%. (see Appendix for more detail on the RBNZ QE program).

While the dynamics are different in all markets and so the volume of purchases may not be completely comparable, in isolation this would suggest at a minimum the RBA would likely also want to be looking to get overall holdings at/or above 30% of outstandings. This would assist in keeping Australian bond yields closer to those nations that still have a positive cash rate.

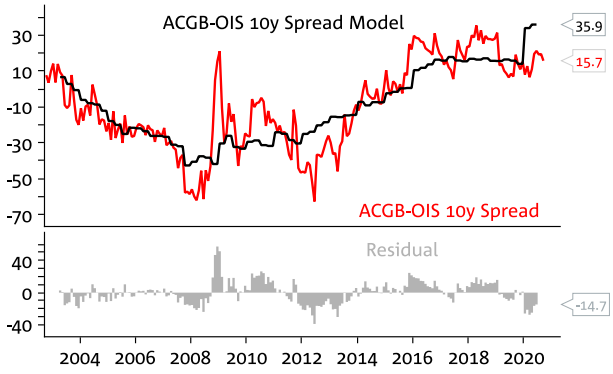
The estimated effect of QE on bond yields

Although the RBA frames the end goal of quantitative easing as job creation, the initial market benchmark for the program is going to be the extent to which bond yields are lowered (both in an outright sense and in terms of spreads to global benchmarks). In our 2019 QE note we used two different models to estimate the price impact of a QE program.

The baseline assumption of our models is that RBA purchasing can be proxied by looking at the historical impact of offshore investor activity. This is because a significant portion of this buying represents long-term allocations to AUD assets from sources like official reserves. This flow is less price sensitive and tends be quite "sticky" – similar to a QE program.

Firstly, we used the ACGB-OIS spread as a measure of the 'scarcity' premium of ACGBs. When foreign holdings of ACGBs increase, 10Y ACGBs tend to richen to OIS. Modelling the 10Y ACGB-OIS spread as a function of net debt to GDP and the portion of ACGBs held offshore, we have found that over the post-GFC period a 1% change in offshore holdings decreased the ACGB-OIS spread by almost 2bp.

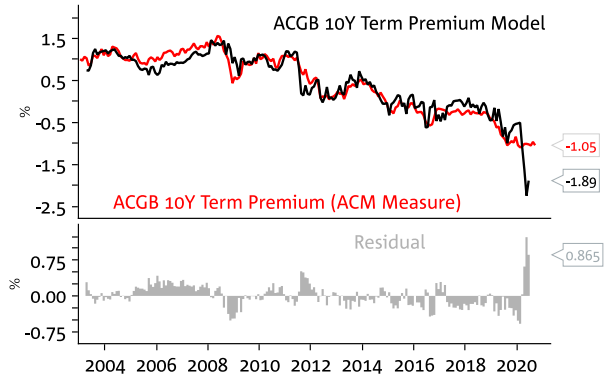
Chart 7: ACGB-OIS model using offshore holdings



Source: National Australia Bank, Macrobond

The second method we used to estimate the impact of QE is via the estimated term premium on ACGBs. We modelled the AOFM's estimates of ACGB term premium (computed using the ACM model) using offshore bond holdings, the unemployment rate, US bond term premium, and the global economic policy uncertainty index.

Chart 8: ACGB term premium model



Source: NAB, AOFM, Bloomberg, ABS

The shock to the unemployment rate this year has created a very large positive residual – although the

model's output of an implied 0.5bp reduction in term premium (and thus yield, as the risk neutral rate shouldn't change) for every one percentage point increase in foreign bond holdings is unchanged.

These models have given very divergent results but we will take the mid-point – about 1.2bp of yield reduction for every 1 percentage point of the market purchased offshore – so we can make some estimates of the yield impact in Australia of a QE program.

As per the analysis earlier in this note, we think the RBA will need to buy close to $160bn of bonds ($20bn in YCC and $143bn in pure QE). Overall bond outstandings by mid-2022 are expected to be about $927bn. This means the RBA will buy about 18% of outstanding ACGBs. Using our models, we would thus expect a very approximate reduction in the 10-year bond yield of 20-25bp, or possibly more if the 2bp per percentage point estimate from the ACGB-OIS model is more accurate.

At the larger end of our estimates for a QE program, at $300bn or 32% of the market, our models imply a reduction in yield of 35-40bp.

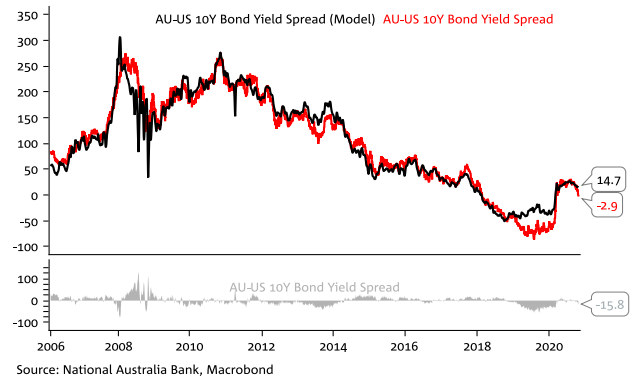
As a reference point for our estimate, we can look to a recent report by our Bank of New Zealand colleagues on estimating the impact of the RBNZ's large scale asset purchase program on NZGB yields. Using the residuals from regression models calibrated over non-QE periods – which have shifted negative over the past six months – they have estimated that 10Y NZGB yields may be up to 70bp lower under the RBNZ's QE program (see Appendix for more detail).

With the RBNZ planning to buy up to 60% of its market, and similarities between the small open economies of both countries, the estimates we have calculated for Australia seem broadly appropriate.

What might be priced already?

Because the models specified above generally use low frequency data, generating scenarios using these models directly is difficult. Instead we look for excess richness of ACGBs on other measures, such as relative to USTs, and work backwards.

Chart 9: 10Y ACGB-UST model (8th IR/ED futures spread)



Source: National Australia Bank, Macrobond

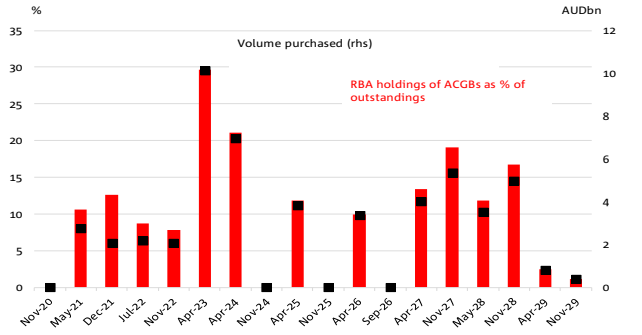
Modelling the 10Y ACGB/UST spread using short rate differentials shows that currently the 10Y ACGB yield is nearly 20bp 'too low'. Note that although there was an extended period of 10Y ACGB looking expensive on this model in 2018-19, that was caused by funding market stresses in Australia that especially affected short rates

Using the estimates developed above of roughly 1.2bp in yield moves per percentage point of bonds purchased, this points to the market currently implying a bond buying program of very approximately $150-200bn.

The breakdown of RBA purchases based on a $163bn bond buying program

We estimate that the RBA currently owns around 7.3% of ACGBs outstanding and around 4% of the benchmark semi-government bonds outstanding. In terms of maturity buckets, the RBA owns close to 14% of outstandings in the zero to 4-year maturities (or $26bn); 7% in bonds between 5-10y maturity (or $26bn) and has not bought bonds with a maturity greater than 10-years.

Chart 10: RBA current ACGB holdings



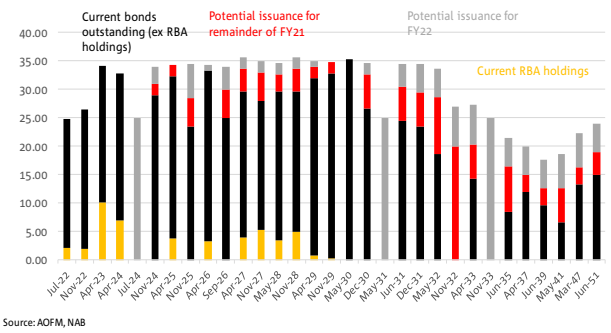
Source: NAB, Bloomberg

In terms of the growth in bonds outstanding, we estimate that ACGB outstandings will be near $780bn by end 2020-21 (there is another $115bn of ACGBs to be issued) and based on Government estimates could be up near $927bn by end 2021-22 (circa $160bn of gross issuance).

The AOFM has never provided a cap to the size of bond lines but in a speech in July, AOFM CEO, Rob Nicholl, noted that the "marginal liquidity benefits are likely to dissipate after bond lines reach around $30-35bn" and that an alternative for the AOFM going forward could be to "introduce a third within year bond line". We think the AOFM will provide more colour around this idea in January when it provides its next issuance update.

In Chart 9 we provide an estimate as to where this issuance could fall (while also showing what the RBA currently holds). Based on the issuance assumptions (as per above), bonds outstanding in the 5-10 year maturities could total around $478bn by 30 June 2022 and around $92bn in the 3-year part of the curve.

Chart 11: Bonds outstanding & where issurance may be



Source: AOFM, NAB

To maintain the YCC target we see the RBA having to ultimately own around 30-35% of the relevant bond lines. Based on our assumption on issuance this equates to around $20bn of purchases in the 3-year bucket between now and 30 June 2022. In the 5-10 year part of the curve it equates to bond purchasing of around $143bn (taking into account current holdings).

In terms of what this volume might look like on a weekly basis it would probably be around $2.5bn a week (assuming 65 weeks left between now and 30 June 2022 – taking into account holidays, key release dates etc) vs AOFM current issuance run rate of $3-$4bn.

Table 1: Purchases required to achieve % outstanding

$bn	Total outstanding by June 22	Current RBA holdings	RBA purchases to get holdings to 30-35%	RBA purchases to get holdings to 50%
3y bucket	92	7	20	39
5-10y bucket	478	26	143	213
Total for YCC and QE in 5-10y	570	33	162	252
Entire curve	927	33	245	430

Modelling the effect of QE on the AUD

After RBA Assistant Governor Debelle's speech on 22 September and Governor Lowe's speech on "The Recovery from a Very Uneven Recession" on 15 October, the market has effectively priced cut of 15bps to both the Cash Rate and 3-year YCC target to 0.10%, alongside the prospect of a QE programme focused on the 5 to 10 year part of the ACGB curve.

Our rate strategists note that pricing in of QE in the 10-year segment of the curve has already resulted in about 20bps of compression in the 10y AU-US spread. Stress testing our short-term AUD/USD model, we estimate the shift in RBA pricing expectations on the ACGB term structure is worth about one cent (lower) on the AUD/USD. Prior to Debelle's speech the AUD/USD was trading just above 73¢ and the pair now trades just above 71¢.

NAB expects the RBA to deliver a QE programme somewhere in the region of $143bn, undoubtedly on the day such an announcement will create some ripples in the market, but once the dust settles, in this scenario we don't expect further meaningful QE-driven declines in the AUD/USD.

An upside surprise with a programme close to $300bn, is capable of compressing the 10y AU-US spread by an additional 15bps (so 35bps in total). On our modelling such a move would suggest a further fall in the AUD by just under half a cent.

A disappointing outcome that sees the RBA delivering just $100bn is likely to result in a re-widening in the 10y AU-US spread. This would be consistent with the AUD/USD rising somewhere between 0.25 and 0.5 cents.

Table 2: AUD/USD vs QE scenarios

Table 2: AUD/USD vs QE scenarios

Scenarios	QE size (AUD bn)	AUD/USD c
Dissapointing	100	+0.25c to +0.50c
RBA Delivers	163	Little changed given current expectations
Upward surprise	300	-0.40c to -0.50c

Global Markets Research

CALENDAR OF ECONOMIC RELEASES

Country	Economic Indicator	Period	Consensus	Actual	Previous	AEST
Monday October 26						
JN	PPI Services YoY	Sep	1.00%	--	1.00%	10:50
AU	ABS Australia Preliminary September Merchandise Trade					11:30
JN	Leading Index CI	Aug F	--	--	88.8	16:00
JN	Coincident Index	Aug F	--	--	79.4	16:00
GE	IFO Business Climate	Oct	93	--	93.4	20:00
GE	IFO Expectations	Oct	--	--	97.7	20:00
CA	Bloomberg Nanos Confidence	Oct-23	--	--	51.9	23:00
US	New Home Sales	Sep	1024k	--	1011k	01:00
US	Dallas Fed Manf. Activity	Oct	13.5	--	13.6	01:30
Tuesday October 27						
NZ	Exports NZD	Sep	4.00b	--	4.41b	08:45
NZ	Imports NZD	Sep	5.02b	--	4.76b	08:45
NZ	Trade Balance NZD	Sep	-1015m	--	-353m	08:45
AU	ANZ Roy Morgan Weekly Consumer Confidence Index	Oct-25	--	--	98.1	09:30
CH	Industrial Profits YoY	Sep	--	--	19.10%	12:30
AU	RBA's Bullock Gives Online Speech					17:00
EC	M3 Money Supply YoY	Sep	--	--	9.50%	20:00
US	Durable Goods Orders	Sep P	1.00%	--	0.50%	23:30
US	Durables Ex Transportation	Sep P	0.40%	--	0.60%	23:30
GE	Retail Sales MoM	Sep	-0.80%	--	3.10%	11/03
US	S&P CoreLogic CS 20-City MoM SA	Aug	0.40%	--	0.55%	00:00
US	Conf. Board Consumer Confidence	Oct	101.9	--	101.8	01:00
US	Richmond Fed Manufact. Index	Oct	18	--	21	01:00
Wednesday October 28						
AU	CPI YoY	3Q	0.70%	--	-0.30%	11:30
AU	CPI QoQ	3Q	1.60%	--	-1.90%	11:30
AU	CPI Trimmed Mean QoQ	3Q	0.40%	--	-0.10%	11:30
AU	CPI Weighted Median QoQ	3Q	0.30%	--	0.10%	11:30
US	MBA Mortgage Applications	Oct-23	--	--	-0.60%	22:00
US	Advance Goods Trade Balance	Sep	-$85.0b	--	-$82.9b	23:30
US	Wholesale Inventories MoM	Sep P	--	--	0.40%	23:30
US	Retail Inventories MoM	Sep	--	--	0.80%	23:30
UK	Nationwide House PX MoM	Oct	--	--	0.90%	11/04
CA	Bank of Canada Rate Decision	Oct-28	0.25%	--	0.25%	01:00
US	Fed's Kaplan Moderates a Panel Discussion with Mark Carney					09:00
Thursday October 29						
JN	Foreign Buying Japan Bonds	Oct-23	--	--	¥392.4b	10:50
JN	Retail Sales MoM	Sep	1.00%	--	4.60%	10:50
JN	Dept. Store, Supermarket Sales YoY	Sep	-12.20%	--	-3.20%	10:50
NZ	ANZ Business Confidence	Oct F	--	--	-14.5	11:00
NZ	ANZ Activity Outlook	Oct F	--	--	3.6	11:00
AU	NAB Business Confidence	3Q	--	--	-15	11:30
AU	Import Price Index QoQ	3Q	-2.00%	--	-1.90%	11:30
AU	Export Price Index QoQ	3Q	-3.50%	--	-2.40%	11:30
JN	Consumer Confidence Index	Oct	36	--	32.7	16:00
GE	Unemployment Change (000's)	Oct	-7.0k	--	-8.0k	19:55
EC	Economic Confidence	Oct	89.6	--	91.1	21:00
EC	Industrial Confidence	Oct	--	--	-11.1	21:00
EC	Services Confidence	Oct	--	--	-11.1	21:00
CA	CFIB Business Barometer	Oct	--	--	59.2	21:00
EC	Consumer Confidence	Oct F	--	--	-15.5	21:00
US	Initial Jobless Claims	Oct-24	--	--	787k	23:30
US	Continuing Claims	Oct-17	--	--	8373k	23:30
US	GDP Annualized QoQ	3Q A	32.00%	--	-31.40%	23:30
US	Personal Consumption	3Q A	38.70%	--	-33.20%	23:30
US	GDP Price Index	3Q A	2.90%	--	-1.80%	23:30
US	Core PCE QoQ	3Q A	4.00%	--	-0.80%	23:30
EC	ECB Deposit Facility Rate	Oct-29	-0.50%	--	-0.50%	23:45
JN	BOJ Policy Balance Rate	Oct-29	--	--	-0.10%	/2020
GE	CPI MoM	Oct P	0.10%	--	-0.20%	00:00
GE	CPI YoY	Oct P	-0.20%	--	-0.20%	00:00
US	Pending Home Sales MoM	Sep	3.50%	--	8.80%	01:00
EC	ECB's Villeroy speaks in Paris					03:00
Friday October 30						
NZ	ANZ Consumer Confidence MoM	Oct	--	--	-0.20%	08:00
JN	Tokyo CPI Ex-Fresh Food, Energy YoY	Oct	-0.20%	--	0.00%	10:30
JN	Jobless Rate	Sep	3.10%	--	3.00%	10:30
JN	Industrial Production MoM	Sep P	3.00%	--	1.00%	10:50
AU	Private Sector Credit MoM	Sep	0.10%	--	0.00%	11:30
AU	PPI QoQ	3Q	--	--	-1.20%	11:30
JN	Vehicle Production YoY	Aug	--	--	-22.10%	15:00
JN	Housing Starts YoY	Sep	-8.60%	--	-9.10%	16:00
JN	Annualized Housing Starts	Sep	0.823m	--	0.819m	16:00
GE	GDP NSA YoY	3Q P	--	--	-11.30%	18:00
EC	Unemployment Rate	Sep	8.30%	--	8.10%	21:00
EC	GDP SA QoQ	3Q A	9.40%	--	-11.80%	21:00
EC	GDP SA YoY	3Q A	-7.40%	--	-14.70%	21:00
EC	CPI Estimate YoY	Oct	-0.40%	--	-0.30%	21:00
EC	CPI Core YoY	Oct P	0.20%	--	0.20%	21:00
CA	GDP MoM	Aug	--	--	3.00%	23:30
CA	GDP YoY	Aug	--	--	-5.00%	23:30
US	Personal Income	Sep	0.30%	--	-2.70%	23:30
CA	Industrial Product Price MoM	Sep	--	--	0.30%	23:30
US	Personal Spending	Sep	1.00%	--	1.00%	23:30
CA	Raw Materials Price Index MoM	Sep	--	--	3.20%	23:30
US	Real Personal Spending	Sep	--	--	0.70%	23:30
US	PCE Deflator MoM	Sep	0.20%	--	0.30%	23:30
US	PCE Core Deflator MoM	Sep	0.20%	--	0.30%	23:30
US	MNI Chicago PMI	Oct	58.5	--	62.4	00:45
US	U. of Mich. Sentiment	Oct F	81.2	--	81.2	01:00

Upcoming Central Bank Interest Rate Announcements				
Europe, ECB	Oct 29	-0.50	-0.50	-0.50
Japan, BoJ	Oct 28	-0.10	-0.10	-0.10
US, Federal Reserve	Oct 29	0/0.25	0/0.25	0/0.25
New Zealand, RBNZ	Nov 3	0.25	0.25	0.25
UK, BOE	Nov 5	0.10	0.10	0.25
Australia, RBA	Nov 5	0.25	0.25	0.25
Canada, BoC	Nov 11	0.25	0.25	0.25

GMT: Greenwich Mean Time; AEDT: Australian Eastern Daylight Time

FORECASTS

Economic Forecasts

	Annual % change				Quarterly % change															
					2019				2020				2021				2022			
Australia Forecasts	2019	2020	2021	2022	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Household Consumption	1.5	-8.6	4.7	4.4	0.4	0.3	0.1	0.4	-1.2	-12.1	2.2	0.9	3.0	2.7	1.9	1.3	0.6	0.8	0.7	0.7
Underlying Business Investment	-1.5	-8.7	-10.4	6.3	0.6	0.0	-1.7	-0.6	-1.0	-3.1	-5.5	-6.9	-2.2	-0.4	1.3	0.6	2.2	2.1	1.8	1.8
Residential Construction	-6.7	-12.4	-10.1	11.3	-2.5	-2.6	-1.0	-2.7	-1.0	-6.8	-5.7	-3.8	-3.5	-0.8	1.5	2.3	3.2	3.2	4.2	3.3
Underlying Public Spending	5.1	7.3	7.2	3.4	1.1	2.0	1.6	0.7	1.7	2.1	2.8	2.0	2.0	1.2	1.2	0.8	0.8	0.8	0.8	0.8
Net Exports (a)	1.0	0.9	-2.1	-1.0	0.3	0.6	0.2	-0.1	0.4	1.0	-0.4	-0.2	-0.7	-0.6	-0.5	-0.3	-0.3	-0.3	-0.3	-0.2
Inventories (a)	-0.2	0.0	0.4	0.0	0.0	-0.3	0.0	0.2	-0.2	-0.6	1.4	-0.2	0.1	0.0	0.1	-0.1	-0.1	0.0	0.0	0.0
Domestic Demand (q/q %)	--	--	--	--	0.3	0.6	0.4	0.4	-0.4	-7.4	1.1	0.2	1.9	1.8	1.6	1.1	1.0	1.0	1.0	1.0
Dom Demand (y/y %)	1.4	-4.8	3.1	4.6	1.2	1.3	1.3	1.6	0.9	-7.0	-6.4	-6.6	-4.4	5.0	5.6	6.6	5.6	4.8	4.2	4.0
Real GDP (q/q %)	--	--	--	--	0.4	0.8	0.5	0.6	-0.3	-7.0	2.4	0.1	1.3	1.1	1.2	0.7	0.6	0.8	0.7	0.7
Real GDP (y/y %)	1.8	-3.6	2.3	3.2	1.7	1.6	1.8	2.3	1.6	-6.3	-4.5	-5.0	-3.5	5.0	3.8	4.4	3.7	3.4	2.9	2.9
CPI headline (q/q %)	--	--	--	--	0.0	0.6	0.5	0.7	0.3	-1.9	2.0	0.7	0.5	0.4	0.4	0.5	0.3	0.5	0.6	0.6
CPI headline (y/y %)	1.6	1.0	2.1	1.8	1.3	1.6	1.7	1.8	2.2	-0.3	1.1	1.1	1.2	3.6	1.9	1.8	1.6	1.8	2.0	2.0
CPI underlying (q/q %)	--	--	--	--	0.2	0.4	0.4	0.4	0.5	0.0	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.5	0.5	0.3
CPI underlying (y/y %)	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.4	1.7	1.3	1.3	1.3	1.3	1.8	1.6	1.5	1.3	1.4	1.6	1.6
Private wages (q/q %)	--	--	--	--	0.5	0.5	0.5	0.5	0.5	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5
Private wages (y/y %)	2.2	1.6	1.0	1.6	2.4	2.3	2.2	2.2	2.1	1.7	1.4	1.1	0.8	1.0	1.0	1.0	1.3	1.5	1.8	2.0
Unemployment Rate (%)	5.1	6.7	7.7	6.3	5.1	5.1	5.1	5.2	5.1	7.0	6.9	7.7	8.2	8.0	7.6	7.0	6.7	6.4	6.2	6.0
Terms of trade	5.2	0.7	2.6	1.3	3.2	1.5	0.2	-5.0	3.1	0.2	1.2	1.4	0.1	0.9	0.2	0.2	0.2	0.5	0.5	-0.1
Current Account (% GDP)	0.6	3.1	2.0	0.9	-0.5	0.9	1.5	0.4	1.8	3.8	3.4	3.4	2.7	2.2	1.7	1.4	1.2	1.0	0.8	0.5

Source: NAB Group Economics; (a) Contributions to GDP growth

Exchange Rate Forecasts

	26-Oct	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21
Majors						
AUD/USD	0.714	0.74	0.76	0.77	0.77	0.78
NZD/USD	0.67	0.68	0.69	0.70	0.71	0.72
USD/JPY	104.7	103	103	100	100	100
EUR/USD	1.18	1.22	1.23	1.25	1.26	1.27
GBP/USD	1.31	1.36	1.40	1.40	1.43	1.44
USD/CNY	6.69	6.90	6.85	6.70	6.70	6.60
USD/CAD	1.31	1.34	1.33	1.30	1.23	1.24
USD/CHF	0.90	0.91	0.91	0.91	0.91	0.91
Australian Cross Rates						
AUD/NZD	1.07	1.09	1.10	1.10	1.08	1.08
AUD/JPY	74.7	76	78	77	77	78
AUD/EUR	0.60	0.61	0.62	0.62	0.61	0.61
AUD/GBP	0.55	0.54	0.54	0.55	0.54	0.54
AUD/CNY	4.77	5.11	5.21	5.16	5.16	5.15
AUD/CAD	0.94	0.99	1.01	1.00	0.95	0.97
AUD/CHF	0.65	0.67	0.69	0.70	0.70	0.71

Interest Rate Forecasts

	26-Oct	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21
Australian Rates						
RBA cash rate	0.25	0.10	0.10	0.10	0.10	0.10
3 month bill rate	0.06	0.08	0.08	0.10	0.10	0.10
3 Year Swap Rate	0.09	0.08	0.08	0.08	0.08	0.08
10 Year Swap Rate	0.75	0.68	0.75	0.90	1.00	1.15
Offshore Policy Rates						
US Fed funds	0.25	0.25	0.25	0.25	0.25	0.25
ECB deposit rate	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
BoE repo rate	0.10	0.10	0.10	0.10	0.10	0.10
BoJ excess reserves rate	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
RBNZ OCR	0.25	0.25	0.25	-0.25	-0.50	-0.50
10-year Bond Yields						
Australia	0.82	0.75	0.85	1.00	1.10	1.20
United States	0.82	0.70	0.80	0.90	1.00	1.10
New Zealand	0.60	1.03	1.28	1.38	1.63	1.73

Sources: NAB Global Markets Research; Bloomberg; ABS

Global GDP

	2019	2020	2021
Australia	1.8	-3.6	2.3
United States	2.2	-4.1	3.4
Eurozone	1.3	-6.4	5.7
United Kingdom	1.4	-9.2	7.4
Japan	0.7	-5.4	2.8
China	6.1	1.5	9.5
India	4.9	-8.8	13.3
New Zealand	2.3	-5.6	1.8
World	3.0	-4.0	6.3

Commodity prices ($US)

	26-Oct	Dec-20	Mar-21	Jun-21	Sep-21
Brent oil	41.3	49	53	55	55
Gold	1902	2030	2050	2100	2200
Iron ore	116	87	85	90	80
Hard coking coal*	125	120	125	140	135
Thermal coal	58	59	59	61	62
Copper	6852	6000	6250	6500	6750
Aus LNG**	6	7	7	8	8

** FOB quarterly contract prices (thermal coal is JFY contract)*

*** Implied Australian LNG export prices*

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