

Government Bond Markets in Advanced Economies During the Pandemic

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Abstract

Governments in advanced economies have funded their large fiscal policy responses to the COVID-19 crisis by issuing government debt securities. Except for a period of dysfunction in the early months of the pandemic, government bond markets have functioned well. Despite the substantial increase in debt issuance, the interest rate paid on new government debt has declined to historically low levels. A rise in private sector saving relative to investment has contributed to demand for low-risk assets like government bonds. At the same time, advanced economy central banks have lowered their policy rates and made large-scale purchases of government bonds in secondary markets in pursuit of their inflation and employment goals.

In response to the dramatic economic contraction caused by the COVID-19 pandemic, governments in advanced economies implemented the largest fiscal policy response since the Second World War.^[1] These fiscal policies have been funded through a substantial increase in the issuance of government debt securities. Such securities are issued by government debt management agencies into 'primary' debt markets. With the notable exception of March and April 2020, conditions in primary markets have been favourable throughout

most of the pandemic and so supported governments' fiscal responses.

Conditions in primary markets are highly dependent on conditions in 'secondary' markets, where securities that have already been issued are traded. Conditions in the secondary market were dysfunctional early in the pandemic but have since been stable. Good functioning of the secondary government bond market is important for central banks because government bond yields in secondary markets serve as a benchmark for yields on other assets and play a key role in monetary

policy transmission. Historically low government bond yields during the pandemic have put downward pressure on funding costs throughout advanced economies and supported the economic recovery.

This article outlines the evolution of government bond markets in advanced economies since the onset of the pandemic, beginning with descriptions of demand and supply developments in the primary and secondary markets and finishing with a discussion of how these have influenced bond yields.^[2]

Despite increased government debt issuance, funding conditions in primary markets remain favourable ...

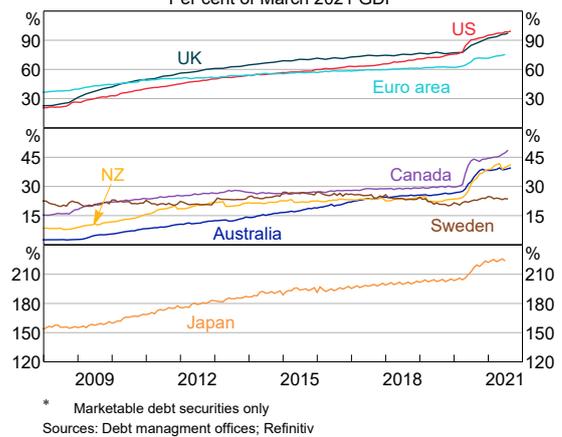
The supply of government debt securities in advanced economies increased substantially in 2020 and 2021 as governments issued debt to fund their fiscal response to the pandemic. The stock of government debt securities outstanding increased by over 50 per cent in Australia, Canada and New Zealand and increased by around one-third in the United States and the United Kingdom (Graph 1). The International Monetary Fund projects that fiscal deficits will moderate but remain high in 2022 as governments continue to provide fiscal support to the economic recovery (Graph 2). Accordingly, while the bulk of the financing task of the COVID-19 fiscal response was addressed in 2020 and 2021, the supply of advanced economy government debt is expected to remain at historically high levels for some time.

In the United States and some other advanced economies, short-term debt securities (of up to one year maturity, called ‘bills’ in some countries) made up a large share of new issuance early on in the pandemic (Graph 3). This was because short-term debt provided flexibility to borrowing authorities as uncertainty around fiscal policy and the economic outlook made future government funding requirements difficult to forecast. At the same time, investors were willing to increase their holdings of bills because bills carry less interest rate risk than longer-term government debt and typically attract a wider pool of investors. Over time, issuance of longer-maturity fixed-rate government debt

(generally referred to as ‘bonds’) has increased. Governments generally pay higher interest rates on their longer-term debt, but in return reduce the frequency with which they need to roll over their debt. When rolling over debt, there is a risk of paying a higher-than-expected interest rate.

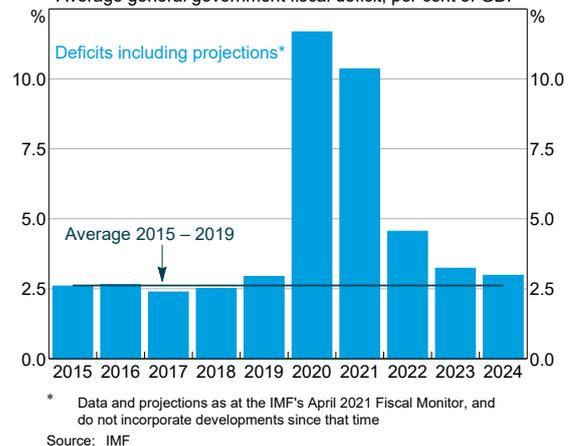
The average maturity of government debt outstanding has evolved differently across advanced economies during the COVID-19 pandemic. The average maturity of US and Canadian government debt has declined reflecting their larger issuance of bills (Graph 4). In other countries, including Australia, the average maturity of debt outstanding has been little changed over the pandemic period.^[3] Differences in market structures across countries, such as the depth of short-term debt markets in the United States, have

Graph 1
Government Debt Outstanding
Per cent of March 2021 GDP



Graph 2

Fiscal Deficits in Advanced Economies
Average general government fiscal deficit, per cent of GDP



also contributed to the differences in funding strategies.

Despite the significant increase in government debt issuance, conditions have been generally favourable in primary markets for government debt apart from the period of bond market dysfunction in March and April 2020 (see below). Demand for new issuance, as measured by the ratio of total bids to the amount of debt being sold at auction, has remained broadly within historical ranges (Graph 5).^[4] In some countries, government debt management agencies have also made greater than usual use of syndications to issue government debt. In a syndication, the price of the bond issuance is negotiated with prospective investors rather than being determined at auction. This approach

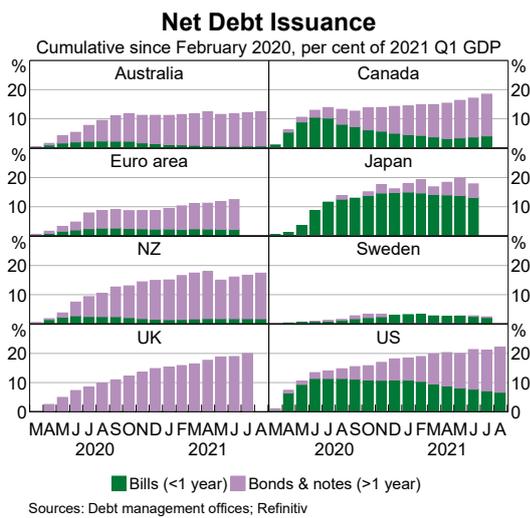
provides debt management offices with greater certainty when issuing larger-than-normal quantities.^[5]

... supported by stable conditions in secondary government bond markets

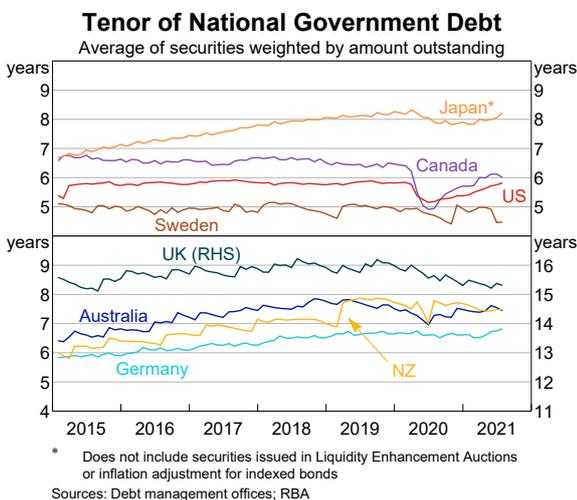
The cost and ease with which governments obtain funding in primary markets can be affected by conditions in secondary markets for government debt. Dealers serve as intermediaries within secondary markets and between the primary and secondary markets, providing liquidity to maintain smooth trading conditions. Dysfunction in the secondary markets can make it difficult or costly for market participants to buy and sell securities, which can in turn limit the ability or willingness of participants in primary markets, particularly dealers, to buy newly issued securities. In addition, bond yields in secondary markets influence the cost of issuing government debt in primary markets.

In early 2020, the extreme economic and financial uncertainty caused by the global spread of COVID-19 caused secondary markets for government bonds to become severely dislocated.^[6] Market participants sold large quantities of government bonds to meet their increased demand for liquidity. Bond dealers then struggled to intermediate the significant volume of flows from clients, reflecting balance sheet constraints and a reluctance to assume significant positions at a time of increased uncertainty and associated financial

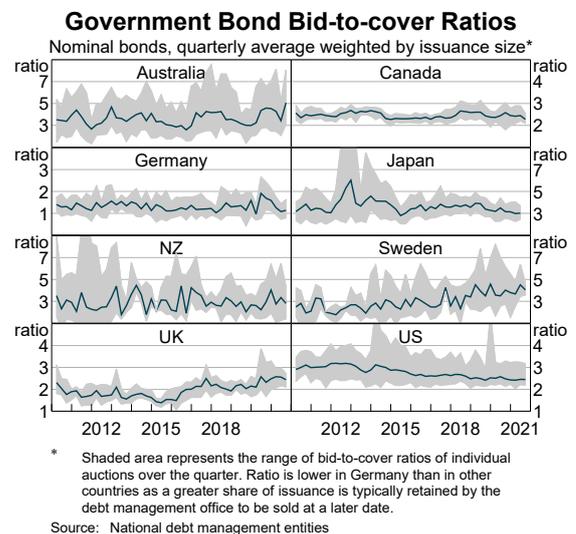
Graph 3



Graph 4



Graph 5

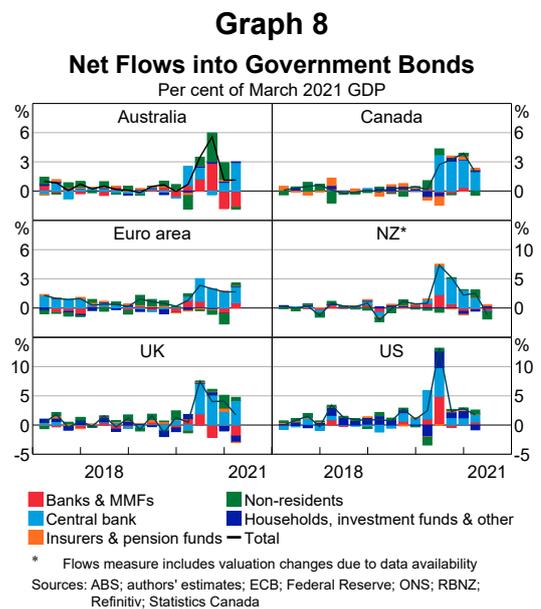
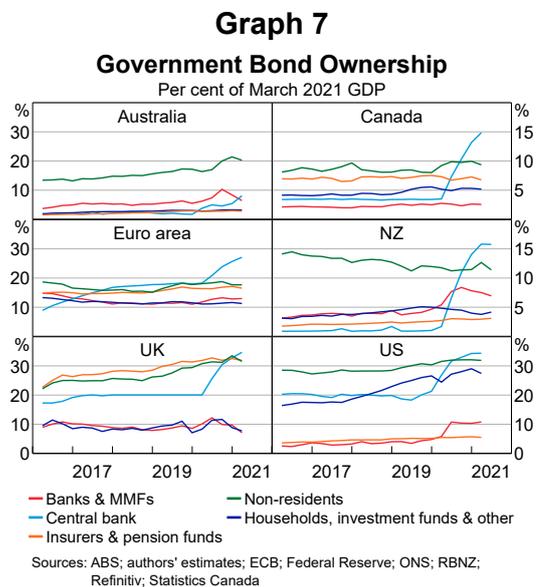
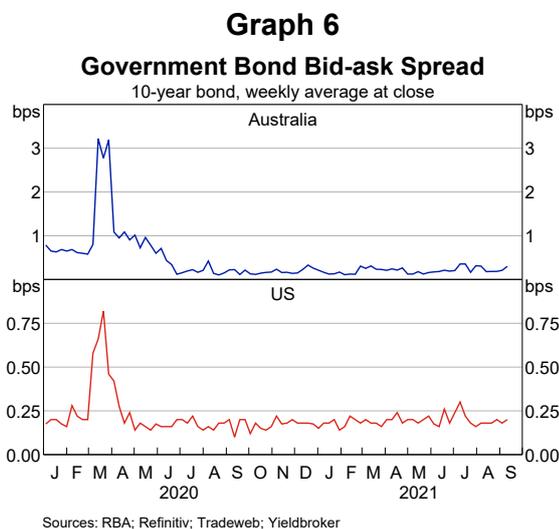


market risk. This resulted in a sharp rise in the cost of transacting in these markets, as illustrated by the sharp rise in bid-ask spreads in March 2020 (Graph 6). Central banks responded to this market dislocation by announcing a range of policy measures. Subsequent to these announcements, conditions quickly improved in secondary bond markets.

The return to more normal trading conditions in secondary government bond markets by April 2020 facilitated the increased issuance of advanced economy government debt. Most categories of market participants have subsequently increased their holdings to above pre-pandemic levels (Graph 7; Graph 8). In many advanced economies in mid 2020, banks and money market funds (MMFs) substantially increased their holdings of government debt. Financial institutions act as intermediaries between savers and borrowers, and government spending on households and businesses during the pandemic has led to funds flowing to financial institutions that have then invested those funds in financial assets, including government bonds. Foreign investor holdings of government bonds also increased in some advanced economies.

Central bank purchases of government bonds in secondary markets have added to demand for government bonds. These were motivated at first by the need to address market dysfunction in March 2020. Thereafter, bond purchases formed part of the packages of measures adopted to ease financial

conditions in pursuit of central bank mandates.^[7] Most advanced economy central banks have purchased the equivalent of at least half of the net increase in government debt since March 2020 (Graph 9). Market participants expect central bank purchases to continue in most jurisdictions until the end of 2021 or beyond, although the pace of purchases has slowed since the start of the pandemic in many economies (and is expected to slow soon in others).^[8]



Government bond yields declined to historically low levels

Government bond yields in advanced economies have declined during the pandemic, from levels that were already historically low. This decline in yields has reflected investors' expectations for growth and inflation, and by extension expectations of an extended period of stimulatory monetary policy and hence low short-term interest rates. Indeed, low government bond yields have been an important aspect of the transmission of monetary policy, given that they reflect expected central bank policy rates and are influenced by asset purchase programs. A range of borrowers have benefited as a result – governments have been able to fund their pandemic responses at low interest rates, while lower yields have also contributed to lower interest rates faced by other borrowers.^[9]

Longer-term forces had led to a decline in bond yields over many decades

Government bond yields in advanced economies have declined since the 1980s, reflecting persistent structural changes in the global economy and financial markets (Graph 10). These structural changes led to a decline in each of three components of bond yields: market expectations of central bank policy rates (in real terms); market expectations for inflation; and the 'term premium', which is the compensation bond holders receive for risks associated with holding a longer-term fixed-

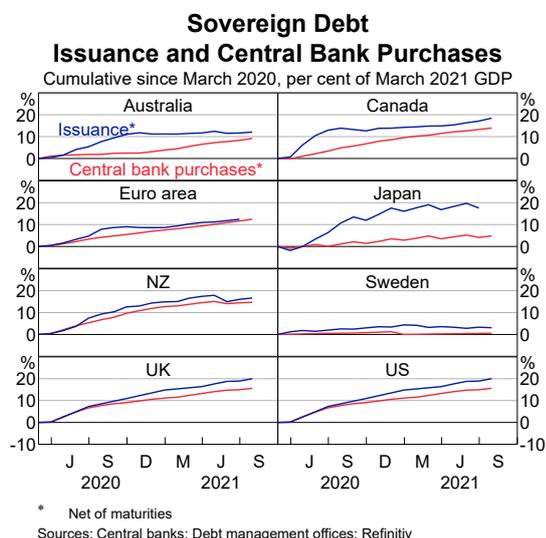
rate bond rather than investing in a series of short-term securities (RBA 2019).

Financial market expectations for future central bank policy rates have declined over recent decades in both real and nominal terms. This reflects a decline in the so-called 'neutral' rate, which is the level of the policy rate that financial markets judge to be neither stimulatory nor contractionary for an economy over the medium term. The neutral rate cannot be observed directly but is likely to have declined due to several factors, including a decline in potential growth rates of advanced economies, a rise in household income inequality, a decline in the risk appetite of firms and changes in the age structure of the population.^[10]

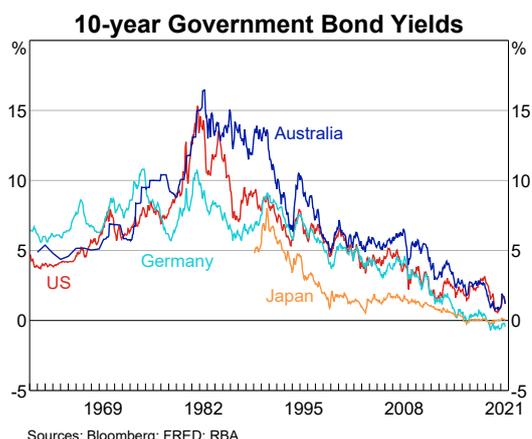
Financial market expectations of inflation declined with the adoption of inflation targeting by many central banks in the early 1990s. As a result, investors have demanded less compensation for the erosion of the purchasing power of their savings, and the expected return on nominal assets has declined.

Another factor that has lowered yields, particularly for longer-term bonds, has been a decline in the term premium. The term premium compensates for the risks that the bond will be difficult to sell at some point (liquidity risk) or that nominal short-term interest rates do not turn out as expected (which is in turn a combination of inflation risk and real interest rate risk).^[11] Substantial uncertainty surrounds estimates of term premiums, but most estimates suggest that they had trended lower and even turned negative prior to the pandemic

Graph 9



Graph 10



(Graph 11).^[12] That has been attributed to low uncertainty about macroeconomic outcomes and an increased presence of price-insensitive buyers for longer-term government securities (RBA 2019).^[13]

There has also been a cyclical decline in bond yields during the pandemic

Yield curves for government bonds in advanced economies have changed substantially over the course of the pandemic. These movements can be characterised as having three phases.^[14] In the first phase, during March and April 2020, yields rose substantially. As noted above, bond market liquidity deteriorated sharply as many market participants sought to convert bond holdings into cash. This contributed to a higher liquidity premium for a short period, after which interventions by central banks saw bond market functioning improve and liquidity premiums decline.

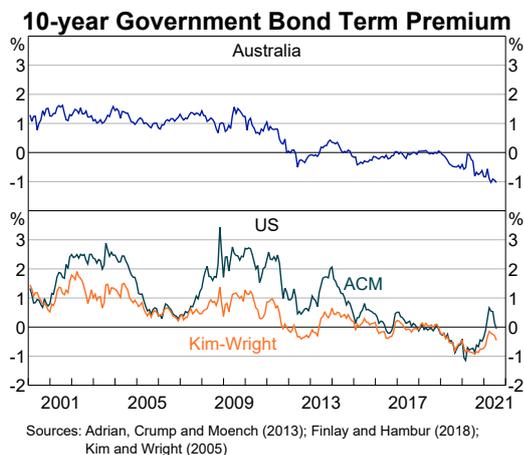
In the second period, from April 2020 to later that year, yields declined at all maturities to below their pre-pandemic levels (Graph 12). Shorter-term bond yields declined to around zero in many advanced economies driven by reductions in central bank policy rates, while in the euro area and Japan they remained at already low levels. Longer-term yields also declined substantially, reflecting expectations among market participants that weakness in economic activity and inflation would require a sustained period of very stimulatory monetary policy. The government bond purchase programs instituted by central banks in response to the deterioration in the economic outlook put

additional downward pressure on bond yields, including by signalling central bank commitment to low policy rates.

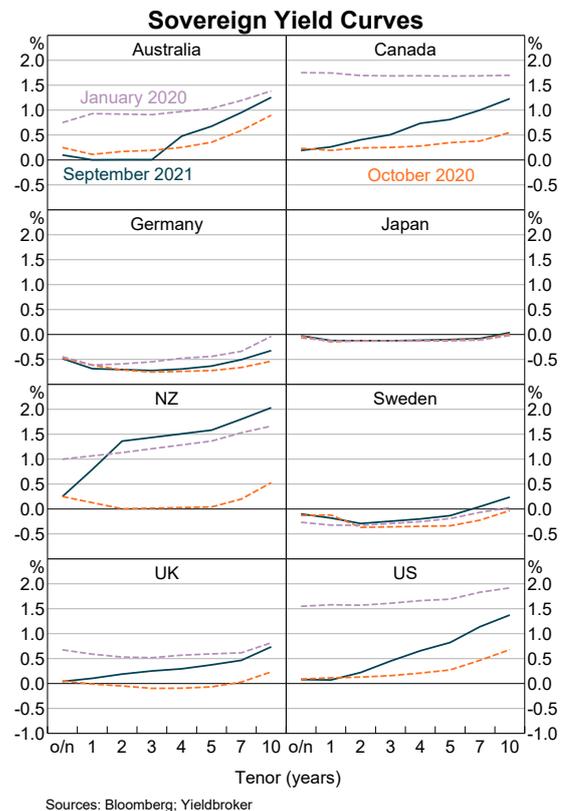
There has been a notable increase in household saving during the pandemic, due to constraints on household expenditure and fiscal stimulus. Business investment has also been lower than it would have been otherwise. Together, this has led to greater demand for assets such as government bonds and placed further downward pressure on yields. Operating in the other direction, the sharp increase in government borrowing tended to put upward pressure on yields. In other words, the private sector has increased saving at the same time that the government has borrowed.

In the third phase since late 2020, longer-run government bond yields have risen alongside progress in the economic recovery and an improving economic outlook supported by the successful development of COVID-19 vaccines. There was a sharp increase in longer-term yields in the first three months of 2021. Since that time, there has been some decline in longer-term yields, in part because of concerns about the impact of new

Graph 11



Graph 12



variants of COVID-19 on economic growth. Meanwhile, shorter-term bond yields have remained low, as central banks have emphasised the need for very stimulatory policy for some time.

During this third phase, there has been a rise in the expected path of central bank policy rates and inflation, with the latter returning to levels consistent with, or only a little below, central bank inflation targets. This has been accompanied by an increase in uncertainty about the outlook for inflation and interest rates. Greater uncertainty increases the compensation required by bond investors for the risk that things do not turn out as they expect, and so leads to higher term premiums. An increase in uncertainty in the United States in particular has drawn attention. However, on some measures, such as the dispersion of longer-run forecasts or option-implied uncertainty, it is not clear that uncertainty about inflation or nominal interest rates is that high relative to history (Graph 13).

Conclusion

After a period of dysfunction early in the pandemic, government bond markets in advanced economies have generally functioned well. Fiscal deficits and government debt issuance were especially high in 2020 and 2021, and debt issuance is projected to remain at higher levels in 2022. Interest rates on government debt were already around historic lows prior to the pandemic and have since declined further. This reflects an increase in the level of private sector savings and a decline in business

investment during the pandemic, as well as the support that central banks have provided to the COVID-19 recovery, which has lowered financing costs for both the private and public sectors. The longer-run forces that have led government bond yields to decline over many decades are likely to remain for some time. However, if the economic recovery continues as expected in advanced economies and employment and inflation move towards central bank targets, central banks will shift to a less accommodative stance of monetary policy and bond yields will rise. Developments in government bond markets will continue to depend on private sector demand for government debt securities. This in turn will depend on private sector saving and investment levels, growth and inflation outcomes, and uncertainty about future economic outcomes. ✎

Graph 13

Uncertainty about US Inflation and Interest Rates



Footnotes

- [*] The authors are from International Department, and would like to thank Stephen Knop for his early contribution to this work.
- [1] For a summary of the global fiscal policy response, see Hudson *et al* (2021).
- [2] The analysis focuses on a subset of advanced economies most relevant to Australia, specifically a mixture of the largest economies and other relatively small open economies. Not all measures are shown for every country, but the intention is to provide a representative picture of advanced economy government bond market developments.
- [3] For detail on the issuance of government debt during the pandemic by the Australian Office of Financial Management, see Nicholl (2020) and Nicholl (2021).
- [4] At times, periods of weaker demand for debt issuance have attracted attention and contributed to a rise in bond yields. A prominent example was a period of weaker-than-expected demand for seven-year US Treasury bonds in March 2021. However, these experiences are not representative of any issues with primary market conditions during the period as a whole.
- [5] For a discussion of the relevant benefits of government bond issuance by tender versus syndication, see AOFM (2019).

- [6] For further details on the dysfunction in financial markets over this period, see Financial Stability Board (2020), Finlay, Xiang and Seibold (2020) and Vallence and Wallis (2020).
- [7] For more detail on central bank purchases of government bonds during the COVID-19 pandemic, including the channels through which they support economic activity, see RBA (2021).
- [8] In many advanced economies, central banks have reduced the pace of their government bond purchases as progress has been achieved in the economic recovery and towards central bank goals for employment and inflation. The pace of government bond issuance has also slowed over the course of the pandemic because of a faster-than-expected economic recovery that has reduced the need for issuance, and because government debt management agencies in some countries acted relatively quickly to provide pre-emptive financing last year.
- [9] The significant rise in public debt on issue over the course of the pandemic has not called into question the sustainability of government finances in advanced economies, partly because of low interest rates on government debt (Blanchard 2019; Hudson *et al* 2021).
- [10] For a broad discussion of the causes of a decline in global neutral rates, see Rachel and Smith (2015). Mian, Straub and Sufi (2021) is a more recent paper on the decline in the US neutral rate, which argues that a rise in income inequality has been a more important cause than the changing age structure of the population. For a discussion on Australia's neutral rate, see McCririck and Rees (2017).
- [11] Government bond yields for some economies may also include premiums for default risk, and for euro area countries a redenomination risk (Corradin, Grimm and Schwaab 2021).
- [12] The term premium for a given bond is typically calculated as the difference between observed longer-term bond yields and the average expected short-term rate over the life of the bond. Relatively complex models are required to estimate government bond term premiums because the average expected short-term rate cannot be directly observed beyond near-term horizons. The term premium estimates shown are based on the models described in Adrian, Crump and Moench (2013), Kim and Wright (2005) and Hambur and Finlay (2018). For a discussion of how different models for the term premium give different results, but suggest similar trends over time, see Cohen, Hördahl and Xia (2018).
- [13] Price-insensitive buyers include firms with significant long-term liabilities such as insurers and defined benefit pension funds, for which longer-term assets such as government bonds provide a hedge against interest rate risk. Financial institutions required to hold higher levels of high-quality liquid assets since the Global Financial Crisis are another source of demand that may be less price sensitive. Central bank holdings of government bonds had also increased in size substantially as some central banks implemented quantitative easing programs.
- [14] Government bond yields tend to fluctuate in similar ways across advanced economies; this is because they are affected by many of the same cyclical and structural economic forces, and their financial markets are highly integrated. For a recent discussion of the common movement of government bond yield curves in advanced economies, see Clarida (2021). For a discussion of how global factors impact monetary policy and term premiums in small open economies, see Rey (2013) and Obstfeld (2015). For a discussion of the impact of global financial conditions on Australia specifically, see Jacobs (2019).

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