

House of Representatives Standing Committee on Economics

Questions in Writing – Reserve Bank of Australia – February 2020

Question by Dr Daniel Mulino MP:

1. In the hearing, the following exchange occurred:

Dr MULINO: So you can give us a number or an estimate of the impact on GDP from coronavirus and the drought? Are you able to give us a number for the net impact on GDP growth of terms of trade being above the long-term average and of the mining sector going into expansionary mode? Is it possible to—

Dr Lowe: The terms of trade are actually expected to come down a little bit. I don't think that with where we're at at the moment the high terms of trade are adding to growth—it just means that we've got a lot of revenue and a lot of national income. So it's boosting the level of national income, but certainly, if we look back over the last decade and a half, the higher terms of trade have made us incredibly wealthy. One of the reasons we've done so well is that commodity prices have been so high, but it's not helping growth at the moment. But what is going to help growth is the pick-up in resource sector investment. That's partly linked to the high commodity prices, but I think there are other things going on—having to replace the depreciating capital stock and some modest capacity expansion. So the high terms of trade are fundamental to high living standards—it's true.

Dr MULINO: Would you be able to give us an estimate of how much that's contributing?

Dr Lowe: Not off the top of my head, because you'd have to look back at how the high terms of trade have generated a lot of investment. We've got a higher capital stock because of that. There's more government revenue and there's more business profits, so I can't do that in my head and I haven't seen data. We could come back to you, if you'd like.

Dr MULINO: That would be great.

Therefore, can you please provide an estimate of the impact on GDP from coronavirus and the drought and the net impact on GDP growth of terms of trade being above the long-term average and of the mining sector going into expansionary mode?

Answer:

Impact on GDP of the coronavirus outbreak

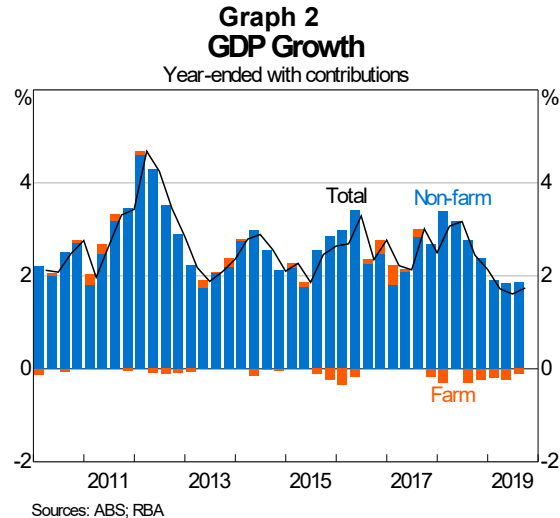
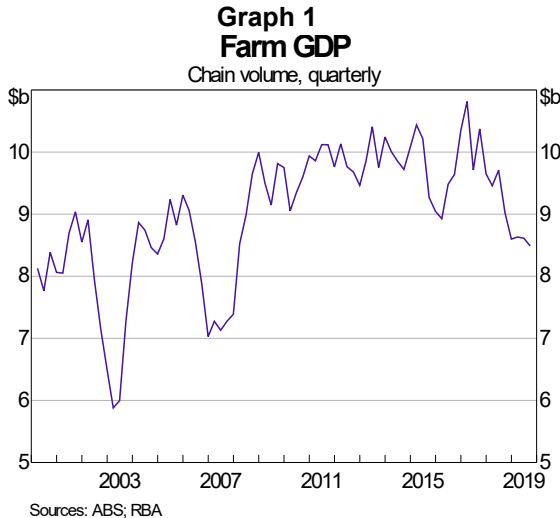
The forecasts presented in the Reserve Bank's February *Statement on Monetary Policy* incorporated a 0.2 percentage point reduction in GDP growth in the March quarter 2020 because of the outbreak of the new strain of coronavirus. This was an early assessment and, as indicated at the time, subject to considerable uncertainty. In particular, it is difficult to gauge the extent and severity of the infection; the impact of containment measures on economic activity in China is uncertain, although it is likely to be significant; and policymakers in China and elsewhere continue to formulate and implement policy responses, including economic stimulus. Developments and information coming available since the February *Statement* was published suggest that there will be a larger and more prolonged effect on GDP growth than was incorporated into the forecasts at that time.

The primary effect on the Australian economy is expected to be through lower tourism and education exports, of which China accounts for around one-quarter. Slower growth in major trading partners and disruptions to global supply chains also pose some near-term risks to other exports, although evidence to date suggests that commodity export volumes have not been materially affected. There is also likely

to be reduced international travel by Australian residents, although only a small share of these services are provided by local companies, so the implications for Australian output are likely to be limited.

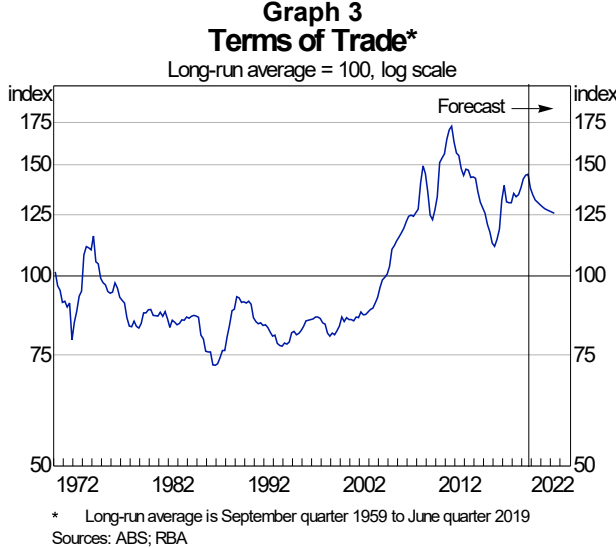
Impact on GDP of the drought

Most of Australia is currently being affected by a severe drought, which began in the eastern states in early 2017 before becoming more widespread across the country. Farm GDP is estimated to have declined by 16 per cent between 2017 and 2019, and reduced total GDP growth by 0.2 percentage points in both 2018 and 2019 (Graph 2). Farm GDP is expected to decline by a further 10 per cent over 2020, representing a drag on GDP growth of around ¼ percentage point.



Impact on GDP of terms of trade and mining sector expansion

The terms of trade in the September quarter 2019 (the latest quarter for which data have been published) were around 30 per cent higher than their trough in March 2016, and around 45 per cent higher than their long-run average, although well below their peak in 2011 (Graph 3). The RBA expects the terms of trade will decline steadily over the next two years, as prices for key commodity exports (including iron ore and metallurgical and thermal coal) decline in line with subdued demand growth and continued increases in global supply of these commodities. Although the terms of trade are expected to remain above their long-run average over the next few years, this is not expected to result directly in an investment response by the mining sector.



This is in contrast to the experience of the 2000s, when rapid growth in demand from Asian economies for resource commodities drove Australia’s export prices and the terms of trade significantly higher, and saw large increases in mining investment to expand Australia’s mining sector productive capacity. After peaking in 2012, the volume of mining sector investment declined notably, and this was a material drag on growth until a couple of years ago.

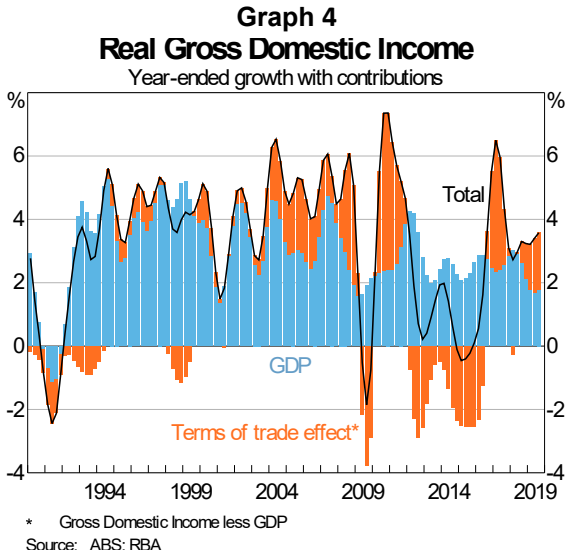
A particular drag owed to the decline in expenditure on LNG extraction and production facilities. However, over the past year these facilities have largely been completed, and further large wind-downs in mining investment expenditure are not expected. In addition, over the past couple of years,

investment expenditure on other resource commodities (including iron ore, coal and non-ferrous metals) has picked up as mining firms look to sustain existing volumes of output and, in some cases, modestly increase production. Therefore the RBA expects that aggregate mining investment will see some increase over the next year or so. The forecasts published in the February *Statement* incorporated a contribution to year-ended GDP growth from mining investment of around ¼ percentage point in 2020, and a further ¼ percentage point in 2021.

The investment in the mining sector’s productive capacity has seen a significant increase in the volume of resource exports over the past decade. Some further increase in resource export volumes is expected over the coming year, but this mainly reflects the continued ramp-up of new LNG facilities and incremental increases in exports of other resources, rather than an additional direct response to the above-average terms of trade.

While the increase in the terms of trade over the past few years is not estimated to be having a significant direct effect on real GDP growth at present, it is the case that Australia’s national income has been boosted by the increase in the terms of trade. One measure of the extent of this is to compare GDP to real Gross Domestic Income (GDI), which accounts for the additional purchasing power of Australia’s exports relative to its imports as a result of the higher terms of trade.¹ If the terms of trade were to return to their long-run average, Australia’s GDI would be around 8 per cent lower than it is at present. However, such a counterfactual does not take into account other adjustments in the economy that could occur if the terms of trade were to decline, such as a depreciation of the exchange rate.

The recovery in commodity prices since their trough in early 2016, and continued growth in resource export volumes, have contributed to a relatively large terms of trade effect on GDI growth over recent years. Over the year to the September quarter 2019, real GDI increased by 3.6 per cent, of which both GDP growth and the higher terms of trade contributed around half (Graph 4).



1 The ABS has discussed aggregate economic measures and how they incorporate terms of trade effects here: [https://www.abs.gov.au/ausstats/abs@.nsf/Products/5206.0~Dec+2004~Feature+Article~The+Terms+of+Trade+and+the+National+Accounts+\(Feature+Article\)](https://www.abs.gov.au/ausstats/abs@.nsf/Products/5206.0~Dec+2004~Feature+Article~The+Terms+of+Trade+and+the+National+Accounts+(Feature+Article))

Question by Dr Andrew Leigh MP, Deputy Chair:

2. In his book *Narrative Economics*, Robert Shiller argues that our narratives about the macroeconomy can be critical. According to the RBA's liaison program, what are the main competing narratives about the Australian macroeconomy? Has the RBA sought to shape these narratives?

Answer:

For nearly 20 years the Reserve Bank has undertaken an extensive program of liaison with business and community organisations across most sectors of the economy and in each state and territory. Over this time, the information provided by liaison contacts has helped the RBA in two key ways:

- It has helped in the monitoring of longer-term trends and structural changes in the Australian economy, including through providing insights into what is influencing the decisions of businesses in the economy. While the official economic data give insights into what has happened, they do not say as much about the 'narratives' around why something happened, or how it might spill over to the rest of the economy; the liaison information has helped provide such insights.
- The timeliness of the liaison information makes it useful for assessing the effect of unexpected events, such as drought, cyclones, bushfires and other natural disasters. In certain cases the timeliness of the information can also assist in providing a lead on emerging trends (and the narratives that go with them) and so help fill a gap in advance of trends being apparent in more comprehensive data from official sources.

In recent years, there have been four main narratives that have been common across liaison contacts:

- Investment spending has been subdued and there has been very little appetite for 'expansionary' investment because firms continue to be focused on activities that reduce costs and/or risks for the business. The exception to this broad narrative of risk aversion is that there has been more appetite for spending on technology projects that are expected to deliver efficiencies. The subdued risk appetite was most prevalent in the mining sector in the years after the mining investment boom, but also for many contacts in the non-mining sector.
- It has been reasonably easy to find employees, labour turnover has been low and, in an environment where margins have been squeezed, firms have not been able to deliver wage increases much in excess of inflation. The increased tendency for average wages growth of 2–3 per cent compared with earlier periods (where 3–4 per cent was the norm) was apparent in liaison from around 2015/16. In recent years, firms have confirmed the use of one-off bonuses and other non-wage incentives (instead of increasing base salaries) to retain highly valued employees. A potential competing narrative has been around labour turnover: although contacts have reported that turnover in their own firms has been low, they have suggested the rise of casualisation and an associated increase in job churn has contributed to low wages growth in the economy. The RBA has done work to understand this as an explanation for low wages growth, but has not found much evidence to support this narrative.
- Pricing power is very low. This has been especially true for retailers and anyone in the retail supply chain, but other industries also report it has been difficult to pass on input cost increases, including where these have been significant. For example, there was little pass-through of the large increase in energy prices that many firms experienced as they rolled off multi-year energy pricing contracts. This narrative is consistent with the way price pressures in the economy have evolved, and we use the liaison program to test for signs that the process of adjustment to a more competitive retail environment may have run its course.
- Most medium to large-size business contacts have consistently reported that financing conditions have not been a constraint on their business decision-making, apart from those exposed to housing/residential property development, who reported a significant tightening in availability of credit, starting in 2017 and becoming more widespread through 2018. This was in contrast to the

RBA's liaison with financial institutions, which reported a more modest tightening in financial conditions during that time. In response to this example of competing narratives, the RBA has used the perspectives brought by one side to test the views of the other as a way of finding where the truth lies. As is often the case, the answer is somewhere in the middle.

- A contrasting narrative around access to finance for small business is evident in the insights from the Reserve Bank's annual Small Business Finance Advisory Panel. This Panel provides valuable information on the financial conditions facing small businesses throughout Australia. In 2019, the panellists indicated that banks' heightened verification of expenses and income has made it more difficult to access finance. This is consistent with liaison with banks that suggests that the verification process for lending to consumers (including lending for housing) has been extended to many small businesses. This is because the personal and business finances of small business owners are often interlinked and so banks often apply consumer lending standards to such loans. Relatedly, the panellists suggested that small businesses find that it has become increasingly difficult to provide the evidence required by banks that they can service a loan. The panellists noted that non-traditional sources of finance are being increasingly used by small businesses, but these sources are often expensive. The narrative of small businesses facing difficulties in obtaining finance was also reported in various surveys through 2019 and the decline in official measures of lending to small business.

The broad messages from liaison, including when they present competing narratives, are incorporated into the RBA's policy discussions, Board material and public communication. Liaison information also features in articles in the Reserve Bank *Bulletin*; recent topics included firms' use of technology, firm-level insights into skills shortages and wages growth, and mining investment beyond the boom. Where possible, we use the analysis of official and other quantitative economic data to test some of the hypotheses posed by contacts in the liaison program; in doing so, we help to shape the narrative by adding evidence on how to weigh up competing narratives. Where the focus has been on filling an information gap in response to an unexpected event, the benefit has been a better understanding of the risks that these events may pose, more so than on developing a competing narrative.

Question by Dr Andrew Leigh MP, Deputy Chair:

3. In recent years, what research has the RBA conducted quantifying the aggregate costs and benefits of lowering interest rates below current levels? How are these quantitative results affected by macro-prudential policy?

Answer:

The RBA has conducted a large amount of research on the macroeconomic effects of a change in interest rates. One recent summary of much of this research is the multipliers of the MARTIN model, which shows that a 100 basis points cut in the cash rate (held at that rate for a year) is associated with:

- a rise in the GDP level of 0.8 per cent after six quarters
- a rise in inflation of a bit less than 0.2 percentage points after two years
- a fall in the unemployment rate by 0.3 percentage points.

As the model is mostly linear, one can scale the results to the size of the cash rate change of interest. For more detail see Section 5.1 in [Ballantyne et al. \(2019\)](#).

Recent research using an alternative modelling and identification strategy supports these estimates of the cash-rate effects on GDP and the unemployment rate, but suggests slightly larger and more immediate effects on inflation. See [Beckers \(2020\)](#) for further details.

Another recent RBA research paper ([Saunders and Tulip, 2019](#)) estimates that lower interest rates would also increase the growth rate of credit and that, other things equal, this would increase the probability of substantial bank failures. This paper, like most other research on this topic, found that the effect of interest rates on the probability of substantial bank failures was too small to offset the unemployment response noted above.

The RBA has emphasised that its primary concern with the effect of lower interest rates is their effect on the resilience of household balance sheets, which the research noted above does not examine. Quantification of this is discussed in response to question 5.

In addition, the research cited above does not examine the role of macro-prudential policy in affecting the costs and benefits of changing interest rates. Research by other central banks, such as Aikman, Giese, [Kapadia and McLeay \(2018\)](#) or [Kockerols and Kok \(2019\)](#), estimates that higher capital requirements would provide a greater reduction in the risk of a financial crisis with less unemployment and higher inflation. However, these studies are focused on the problems of bank failures and do not address the resilience of household balance sheets.

For further discussion of the interactions between monetary and macro-prudential policies, see the response to question 4.

Question by Dr Andrew Leigh MP, Deputy Chair:

4. Financial regulators have policies, such as the counter-cyclical capital buffer, that are explicitly designed to reduce the risks of an over-expansion of credit.² Compared to variations in monetary policy, would an increase in the counter-cyclical capital buffer (or changes in other prudential controls) reduce the risks posed by credit growth with a smaller cost in higher unemployment?

Answer:

The primary aim of the counter-cyclical capital buffer (CCyB) is to increase the resilience of the banking sector during periods of heightened systemic risk. This goes beyond ensuring that individual banks remain solvent, which is fulfilled by other capital requirements. Instead, the CCyB is intended to be available for release during a downturn or the materialisation of systemic risk to ensure that the flow of credit in the economy is maintained. See [BCBS \(2010\)](#) and [APRA \(2019\)](#).

The Basel Committee on Banking Supervision (BCBS) has observed that the CCyB may also have a side effect of helping to lean against excessive credit growth, but this is not its main objective ([BCBS 2010](#)).

Direct evidence on the effectiveness of the CCyB in leaning against credit growth is limited. Only a few jurisdictions have activated a non-zero CCyB. In Australia, APRA has maintained CCyB at zero since it was introduced in 2016.³ There is, however, some indirect evidence that can be drawn upon.

- Internal RBA research suggests that increases in bank capital requirements reduce lending growth and raise lending rates, although the economic effects are not large.
- Banks can also respond to increased capital requirements by shifting into lending activities with lower risk weights. [Atkin and Cheung \(2017\)](#) examined Australian banks' response to tighter capital requirements since the financial crisis. This included a shift towards housing lending and a scaling-back of capital-intensive and lower-return lending. APRA increased the average mortgage risk weights of the major banks by around one-third shortly before the article was published, and its current review of its capital framework includes proposals to further increase risk-weights for investor and interest-only loans. Both of these changes should support APRA's objective to address banks' 'structural concentration in residential mortgages'.

More generally, questions about coordination between macro-prudential and monetary policies remains an active area of international research and debate.

- There is evidence that monetary policy can affect not only the quantum of credit demanded, but also credit quality.⁴ This suggests a role for targeted macro-prudential policies in reducing the build-up of systemic risk when interest rates are low. Indeed, there is good evidence, that APRA's mortgage lending benchmarks affected new housing credit, particularly for targeted segments of the market, such as investor (and interest-only) loans. See [October 2018 Financial Stability Review](#).
- But there is also evidence that macro-prudential policies can affect economic activity and inflation.⁵ This has the potential to create tensions between the objectives of monetary and macro-prudential policies if periods of rapid credit growth coincide with weak economic growth and low inflation. This speaks to the importance of the considered design of macro-prudential policies and coordination between agencies. Appropriate micro-prudential standards, and lending standards in particular, also help to mitigate risks in such circumstances.

2 APRA, Countercyclical capital buffer, Published 11 December 2019

3 APRA has announced that it is likely to include a non-zero default level of the CCyB as part of the upcoming reforms to strengthen the ADI capital framework. A positive default level will increase the likelihood that APRA can use the CCyB in a manner consistent with its primary intention ([APRA 2019](#)).

4 See [Jiménez et al \(2014\)](#) and [Dell'Ariccia et al \(2017\)](#) for a review and some recent additional evidence.

5 For example [Kim and Mehrotra \(2018\)](#) and [Richter, Schularick and Shim \(2018\)](#).

Question by Dr Andrew Leigh MP, Deputy Chair:

5. The RBA has said previously that it is concerned that high levels of indebtedness may cause household spending to react strongly to a downturn in income or asset values.⁶ What research has the RBA done on the likelihood of such a downturn and the size of macroeconomic effects?

Answer:

Quantifying the probability of a downturn is difficult. International experience suggests that high household debt can amplify economic and financial shocks. Rather than estimating the likelihood of a downturn, RBA research has focused on how these channels work to better understand how the economy may respond to such an event.

Borrowing by households enables them to access their future income to make important purchases today, but they ultimately need to repay that debt. When taking out a loan, households commit to servicing debt after taking into account their expectations for future income and wealth. When those expectations are met, borrowing by households is sustainable and can have a positive effect. But if highly indebted households face an unexpected reduction in their income, or if they become unemployed, the burden of servicing their loans may force them to cut back on consumption.

This is well documented by international experience, which suggests that high household debt can amplify economic and financial shocks such as an unexpected increase in unemployment or slower-than-expected income growth, including through the effects on household consumption. Much of this research is based on household-level data, and is summarised in the literature review by [Mian and Sufi \(2018\)](#).

In Australia, research by RBA staff using household-level data comes to the same conclusion as the international literature – that elevated levels of household debt can have adverse effects on the real economy. Recent research has found evidence consistent with a ‘debt overhang effect’ – households cut back on their spending when they have higher levels of outstanding mortgage debt ([Price, Beckers and La Cava, 2019](#)). This research also suggests indebted households reduce their spending by more than other households when hit by adverse shocks to income and asset values, as was the case with the global financial crisis. Consistent with this, forthcoming research by RBA staff finds that household spending falls sharply in response to a hypothetical scenario that involves a large fall in house prices and a large rise in the unemployment rate.

A related field of research concerns the role of household debt in precipitating and propagating banking crises. In contrast with the research on the resilience of household balance sheets, there is macroeconomic (time-series) research by RBA staff suggesting that interest rates have too small an effect on the probability of a banking crisis for the benefit of higher interest rates to be worth the higher unemployment that they entail (e.g. [Saunders and Tulip, 2019](#)). These results are consistent with international research based on a similar approach. However, this research does not take into consideration the increased resilience of household balance sheets and lower debt service, which may be an extra benefit of leaning against the wind. In addition, the research does not take into account credit quality in assessing the probability of a crisis.

6 Commonwealth of Australia, Official Committee Hansard, House of Representatives Standing Committee on Economics, Reserve Bank of Australia annual report 2016, 24 February 2017 and Philip Lowe, ‘Household Debt, Housing Prices and Resilience,’ Economic Society of Australia (QLD) Business Lunch, 4 May 2017.

RBA research has also identified that a downturn in asset values is likely to weigh substantially on economic growth. Examples include [Ballantyne et al. \(2019\)](#) and [May et al. \(2019\)](#), who use the MARTIN model to estimate the potential macroeconomic effects of a downturn in housing prices and find that:

- A 10 per cent fall in national housing prices that persists for five years lowers the level of GDP by a bit more than 1 per cent below its baseline level after one to two years. The decline in economic activity lowers the demand for labour and causes the unemployment rate to increase by around 0.4 percentage points. The decline in economic activity and the higher unemployment rate leads to a fall in inflation of around 0.2 percentage points in year-ended terms. Given that the MARTIN model is largely linear, the estimated effects are roughly proportional to the size of the housing price fall, i.e. a 20 per cent fall in housing prices would lower real GDP by around 2 per cent. If consumption was to decline by more than it has done in the past – perhaps because of greater indebtedness – then the downturn would be larger.
- The implications of lower housing prices are considerably smaller if monetary policy responds. A 75 basis point reduction in the cash rate over four quarters roughly halves the peak effect of lower housing prices on GDP and the unemployment rate, and returns these variables to their baseline trends within three years.

[May et al. \(2019\)](#) also estimate the size of wealth effects in Australia and find that a 10 per cent increase (fall) in net housing wealth raises (lowers) the level of consumption by around $\frac{3}{4}$ per cent in the short run and by $1\frac{1}{2}$ per cent in the longer run. They find that this wealth effect, which also captures the effects of increased housing turnover on consumption that typically occur when housing prices increase, differs by type of spending; it is highest for spending on motor vehicles and household furnishings, but not significantly different from zero for less discretionary items such as food, rent and education.

Question by Dr Andrew Leigh MP, Deputy Chair:

6. Academic research suggests that the effects of such a downturn would be small.⁷ Why does the RBA disagree?

Answer:

International experience suggests that high household debt can amplify economic and financial shocks. Some academic research suggests the effects of such a downturn could be small. The [research paper](#) to which the question refers uses US data and estimates that a 20 per cent decline in housing prices – spread evenly over a two-year horizon – lowers GDP by around 0.5 per cent after three years, raises the unemployment rate by around 0.3 percentage points and reduces inflation by a bit more than 0.1 percentage point (see pp.390–393). These estimates are smaller than the estimated effects for Australia (see response to question 5).

The estimates provided in research cited in the question were produced more than a decade ago, and importantly, before the experience of the global financial crisis. Academics have significantly revised their views on the impact of falling asset prices on consumption in an environment of high household debt. There is now extensive cross-country evidence that expansions in household debt (relative to GDP) driven by (excessive) credit supply can increase the risk of financial crises and subsequently lead to lower spending and economic growth (e.g. [Schularick and Taylor 2012](#); [Jordà et al 2013](#); [Mian et al 2017](#); [Mian and Sufi 2018](#)). See responses to question 5 above for more information.

There are also important differences between the United States and Australia that could explain differences in the severity of these shocks. In particular, Australian households may be more exposed to housing price falls because housing represents a higher share of households' wealth in Australia, given that the housing stock is owned entirely by households (compared with significant corporate ownership in the United States). Also, housing loans are full-recourse in Australia, which means there is less incentive to default than in the United States, but perhaps there is a greater effect on consumption.

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7 Frederic S. Mishkin, 'Housing and the monetary transmission mechanism,' Proceedings - Economic Policy Symposium - Jackson Hole, Federal Reserve Bank of Kansas City, 2007, pp. 359–413.