RESERVE BANK
OF AUSTRALIA

ESA | The Economic Society of Australia Incorporated
Central Council

RBA/ESA Economics Competition 2016

FIRST PRIZE

Elizabeth Baldwin
The University of Queensland

Economic Policy Options at Low Interest Rates

With interest rates currently at record lows in many economies (Figure 1) yet inflation (Figure 2) and growth subdued, policymakers face an unprecedented situation: conventional monetary policy is unable to stimulate the economy. This essay will explore the nature of this limitation and alternative fiscal and unconventional monetary policy options.

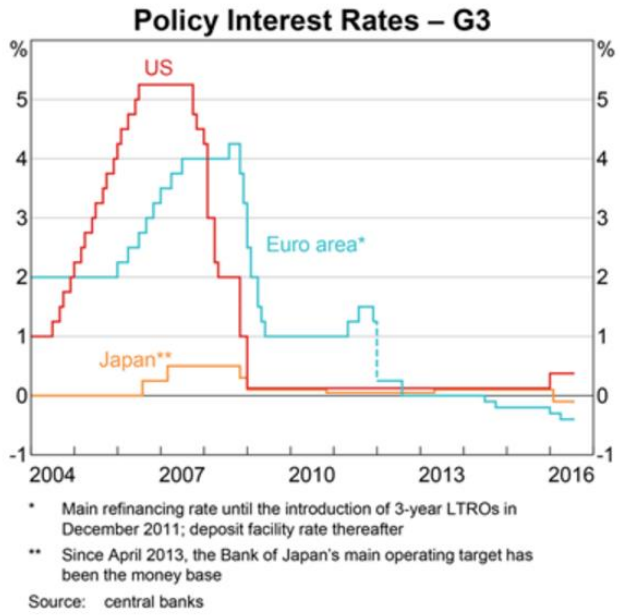


Figure 1: Policy interest rates.
Source: Reserve Bank of Australia, 2016

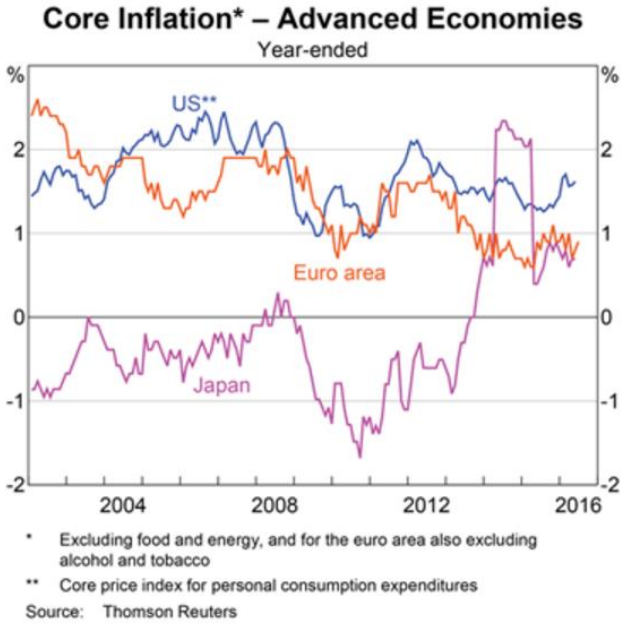


Figure 2: Core inflation.
Source: Reserve Bank of Australia, 2016

Monetary policy transmission channels

Suppose interest rates are at normal positive levels and the central bank decides expansionary monetary policy is required. It lowers the target short-term interest rate, lending and deposit rates adjust accordingly, and agents update their expectations about inflation and the future path of short-term rates, influencing medium and long-term rates (European Central Bank, n.d.). These changes support GDP and inflation. An interest rate reduction makes saving less attractive, and credit more accessible, for households and firms, so aggregate demand rises, particularly if a large proportion of consumers face liquidity constraints (Gross & Souleles, 2002). Consumption is also boosted through the cash flow channel: households' disposable income increases as, for example, mortgage repayment costs decline (Kent, 2015).

Indirectly, GDP is also strengthened by the exchange rate channel. The interest rate cut depreciates the domestic currency, making domestic goods cheaper relative to foreign goods and aiding domestic producers.

Finally, investors' search for yield and lower borrowing costs mean that asset prices rise as interest rates fall. This supports investment in asset-based industries such as dwelling construction (Figure 3; this is also aided by cheaper credit) and through the balance sheet effect, with firms able to finance new projects more easily as the value of their assets increases (Kent, 2015). Consumption is also boosted through the wealth effect: households typically spend 3 or 4% of an increase in their net worth (Windsor, Jääskelä, & Finlay, 2013).

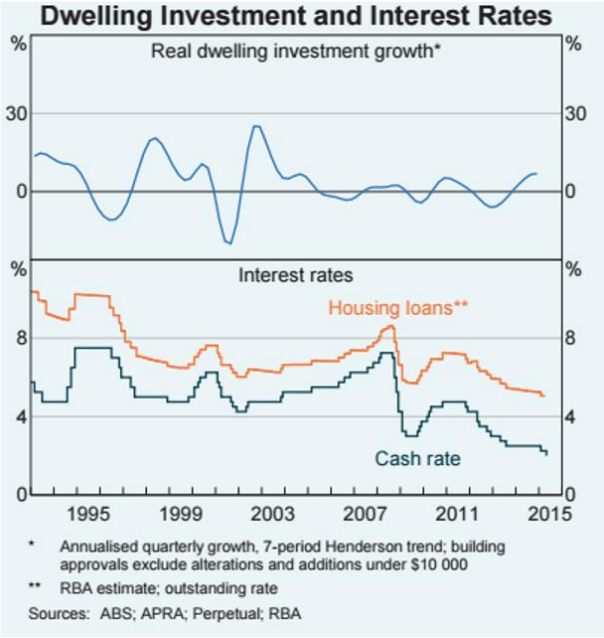


Figure 3: Dwelling Investment and Interest Rates. Source: Reserve Bank of Australia, 2015

Through all of these channels, the interest rate cut stimulates aggregate demand and therefore economic growth and inflation.

Complications at low interest rates

However, monetary policy does not always achieve these desired effects: there may be "several slips between the cup and the lip" (Keynes, 1936, p. 173). At low rates, a liquidity trap can emerge, where conventional monetary policy fails to stimulate the economy because agents are willing to hold any amount of money at that rate. This phenomenon is typically attributed to issues with either the natural interest rate or public confidence.

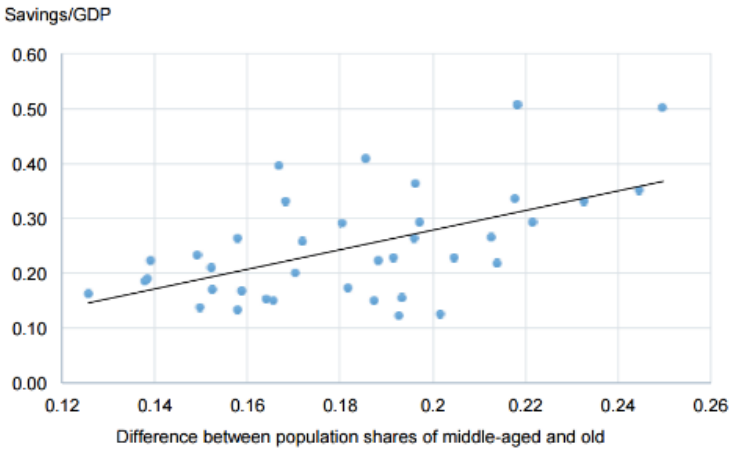
The first set of theories suggests that the problem is structural: desired saving exceeds desired investment, so the 'natural' interest rate (the rate at full employment) is negative (Krugman, 2013). There are competing explanations for the apparent recent decline. Bernanke (2015) attributes the change to a "global savings glut" originating in China and other emerging Asian economies over the last decade (Figure 4). Conversely, secular stagnation proponents blame

more fundamental shifts. The excess of savings is ascribed to demographic (Figure 5) and income distribution changes, while the reduction in the cost of investment goods and new firms' reduced capital requirements are held responsible for subdued investment demand (Bean, Broda, Ito, & Kroszner, 2015, pp. 24-28, 36; Summers, 2014). Regardless of the cause, if policy rates, though nominally very low, are above the natural rate, the effect is contractionary: firms and households simply lack the incentive to spend, and central banks are unable to continue cutting to reach the natural rate (The Economist, 2013).

Current Account Balances
(Billions of U.S. dollars)

Country or region	2000	2006	2010	2013
Advanced Economies	**-269.1**	**-485.1**	**-38.8**	**157.1**
United States	-410.8	-806.7	-443.9	-400.3
Japan	130.7	174.5	217.6	33.6
Euro area (Sum of 18 EA countries)	-36.4	44.4	59.4	356.0
France	19.3	-13.0	-33.8	-36.9
Germany	-34.2	173.4	194.6	254.9
All Peripheral Europe (GIIPS)	-47.8	-197.8	-186.0	44.2
Italy	-2.2	-27.5	-70.3	20.5
Spain	-23.1	-110.9	-62.3	10.6
Other Advanced Economies (ex Asia)	47.4	102.7	128.0	167.7
Australia	-15.6	-45.3	-44.6	-49.9
Switzerland	31.4	57.6	78.7	103.9
United Kingdom	-42.9	-70.7	-61.9	-113.8
Canada	18.6	17.9	-56.7	-58.5
Memo:				
Industrial excl. United States	141.7	321.6	405.1	557.3
Emerging Markets	**134.9**	**730.1**	**467.2**	**429.7**
Asia	79.8	364.0	377.9	336.9
China	20.4	231.8	237.8	182.8
Thailand	9.3	2.3	10.0	-2.5
Hong Kong	7.5	24.6	16.0	5.1
Korea	10.4	3.6	28.9	79.9
Taiwan	8.9	26.3	39.9	57.3
Singapore	10.2	36.9	55.9	54.6
Latin America and the Caribbean	-48.5	46.2	-63.7	-152.5
Argentina	-9.0	7.2	-1.2	-4.9
Brazil	-24.2	13.6	-47.3	-81.1
Mexico	-18.8	-7.8	-3.9	-25.9
Mideast, North Africa, Afghanistan and Pakistan	80.6	280.6	178.6	341.2
Sub Saharan Africa	3.4	29.5	-10.2	-38.5
Eastern Europe	-28.5	-84.1	-84.5	-74.5
Former Soviet Union	48.1	93.9	69.1	17.0
Memo:				
Asia excl. China	59.4	132.2	140.1	154.1
Statistical discrepancy	-134.2	245.0	428.3	586.8

Figure 4: Global Current Account Balances. Source: Bernanke, 2015



Notes: Observations are averages for the US, China, Eurozone (Germany, France, Italy, Spain, and Ireland), Japan, UK, India, Korea, Brazil, Mexico, and Russia over the following five-year periods: 1995-1999, 2000-2004, 2005-2009, and 2010-2014.
Source: United Nations and IMF WEO database.

Figure 5: Demographic pressure and savings propensities. Source: Bean et al., 2015

The second school of thought suggests that agents are simply unwilling to spend, regardless of the interest rate, because they lack confidence about the economic outlook. For example, Kent (2015) highlights that Australian households have chosen to pay down debt, rather than consume, in response to recent interest rate cuts, perhaps due to uncertainty about future income. Similarly, Lane and Rosewall (2015, p. 6) found that business investment decisions are "highly subjective," supporting Akerlof and Shiller's (2009, pp. 55, 143-144) claims about the importance of shared economic narratives. Hence, even at very low rates, if business leaders lack confidence, projects may not proceed, and central bankers lack the capacity to shift this narrative by decisively cutting rates.

These theories are not mutually exclusive and all three are likely involved and interacting in modern liquidity traps. In any case, conventional monetary policy is clearly limited in this environment. Households and firms, whether because of lack of confidence or incentive, fail to respond to low interest rates, so the desired effect on GDP and inflation is not achieved. Crucially, central banks are unable to lower interest rates further because of the 'zero lower bound': notwithstanding experiments by the European Central Bank and others, interest rates cannot fall significantly below zero, or agents will have an incentive to pre-pay bills, purchase gift cards, hold surplus inventory, or bear the costs of holding cash (The Economist, 2016). Inventive proposals to change the nature of the currency (see Agarwal & Kimball, 2015; Armstrong, Caselli, Chadha, & Haan, 2015) are impractical in the short term and fail to deal with issues surrounding bank profitability, capital accumulation, and lending capacity at negative rates (Cœuré, 2016). Conventional monetary policy cannot be the solution.

Alternative policy options

One monetary policy proposal designed to address the structural roots of the problem is for the central bank to raise inflation expectations, reducing the real interest rate, even if the nominal rate is unchanged. Doing so, however, requires the central bank to "credibly promise to be irresponsible": to convince the public that it will continue with expansionary monetary policy, at the expense of any inflation target, after a recovery has occurred (Krugman, 1998, p. 139). This is a difficult task as the public knows that future central bankers will have an incentive to renege, so Eggertsson and Woodford (2003, p. 59) suggest that central banks should take visible action, such as purchasing long bonds, to substantiate the commitment. Similarly, the use of forward guidance which conditionally commits the central bank to a course of action could be effective, forcing future policymakers to consider the damage to

their credibility before deviating from previous promises (Woodford, 2013). More radically, a shift to nominal GDP targeting could give a clear signal that the central bank was prepared to prioritise the recovery, and could provide the psychological "regime shift" which Romer (2013, p. 394) asserts is necessary to restore rapid economic growth.

Despite the theoretical neatness of these ideas, however, practical implementation would be difficult. Cautious central bankers would likely be reluctant to sully their inflation-targeting credibility, and even if they could be convinced to do so, it's not clear that the public would respond as desired, given their "money illusion" and systematic difficultes in accounting for inflation (Akerlof & Shiller, 2009, pp. 41-50).

Quantitative easing and large scale asset purchase programs, designed to push down long-term interest rates, are another unconventional policy option, used extensively in Japan and the United States. These programs raise asset prices, depreciate the domestic currency, and aim to lower the cost of borrowing and encourage riskier investment (Feldstein, 2016; Stevens, 2014). Williams (2014) and Eggertsson and Woodford (2003) also emphasise that the policies can communicate the central bank's ongoing commitment to expansionary policies, again reducing long-term rates and stimulating the economy. As such, these programs can address both the structural and psychological causes of the liquidity trap, without facing any lower bound, which is clearly beneficial. However, the net effect on the real economy is uncertain, and not costless, with risks to financial stability as asset prices balloon (Feldstein, 2016; Stevens, 2014).

A 'last resort' monetary policy is the helicopter money proposal originally imagined by Friedman (1969) and revived recently in Japan, which involves the central bank financing fiscal stimulus (Irwin, 2016). This has the advantage of transmitting monetary policy much more directly to the real economy but has many political and economic hazards.

Given these monetary policy risks, there is also an important role for fiscal policy to stimulate growth and inflation in a low interest rate environment. As Christiano, Eichenbaum, and Rebelo (2011) and Eggertsson and Krugman (2012) note, in a liquidity trap the government expenditure multiplier is particularly large, governments can borrow at very low rates, and there is little crowding out of private investment. As such, a liquidity trap is in many ways an ideal time for governments to invest in infrastructure which will expand the productive capacity of the economy in the future while making up the shortfall of aggregate demand and supporting public confidence.

Another key policy lever is the manipulation of the net tax burden. Transfer payments, for example, can be designed to deliver the maximum stimulus to aggregate demand. An obvious example is targeting transfers to consumers with a higher marginal propensity to consume out of a temporary income increase, such as those with liquidity constraints (Wren-Lewis, 2010, p. 76). Behavioural economics also offers insights in this area. Beatty, Blow and Crossley (2014), for example, found that, on average, 47% of an unconditional transfer labelled the Winter Fuel Payment was spent on fuel, compared to 3% out of an unlabelled payment. This suggests that the careful framing of a transfer as, for example, a domestic industry stimulus payment could enhance its effect on the dmestic economy.

Tax cuts can also stimulate economic growth and inflation where conventional monetary policy fails. Correia, Farhi, Nicolini, and Teles (2013) suggest that governments should implement a temporary investment tax credit while inflating consumer prices by committing to future increases in value-added taxes. This proposal would, they assert, replicate the expansionary effects of negative nominal interest rates without the detrimental consequences of producer price inflation. It is also more likely to be understood by the public than a central bank inflation plan – but may be politically unpalatable and difficult to implement.

A final category of policy options involve structural reforms designed to discourage excess saving and encourage investment. Bean et al. (2015, p. 80) suggest that raising the retirement age and developing social security nets, where they do not already exist, would reduce consumers' need to self-insure and prepare for a long retirement by saving aggressively in middle age. Additionally, given the large body of behavioural economics literature about influencing saving behaviour (see Egan, 2013) it seems likely that governments could 'nudge' consumer saving and spending according to macroeconomic needs, though strict ethical review would be needed.

In terms of investment, reforms to address barriers to growth, such as changes to immigration policy in ageing rich countries and infrastructure and human capital investments could be beneficial (Dudley, 2013). In the short term, the key benefit would likely be the boost to business confidence and expectations. As such, there may also be a role for greater government consideration of the way these programs are framed and announced, in order to maximise the impact on the economic narrative and public confidence.

Conclusion

At low interest rates, central banks are unable to stimulate economic growth and inflation with conventional monetary policy because of the zero lower bound. Despite the complexities of this situation, some general policy recommendations emerge. Investment in public infrastructure by governments is likely to be very beneficial. This supports aggregate demand with little risk of crowding out, is relatively cheap to finance, has an amplified effect through a larger than normal expenditure multiplier, expands the economy's future capacity, and boosts confidence. Coordination by fiscal and monetary authorities to encourage business confidence and investment is also likely to be positive. Conditional commitments by the central bank to maintain expansionary monetary policy, including quantitative easing, for a continued period could be combined with investment tax credits, targeted household transfers and the promise of future reforms to create a sense of opportunity and spur investment spending. Despite the low interest rates, there is no shortage of options for creative policymakers.

Reference List

Agarwal, R., & Kimball, M. (2015). *Breaking Through the Zero Lower Bound* (Working Paper No. 15/224). International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/wp/2015/wp15224.pdf

Akerlof, G. A., & Shiller, R. J. (2009). *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*. Princeton, NJ: Princeton University Press.

Armstrong, A., Caselli, F., Chadha, J., & den Haan, W. (2015). *Monetary policy at the zero lower bound.* Retrieved from http://voxeu.org/article/monetary-policy-zero-lower-bound

Bean, C., Broda, C., Ito, T., & Kroszner, R. (2015). *Low for Long? Causes and Consequences of Persistently Low Interest Rates*. International Center for Monetary and Banking Studies. Retrieved from http://voxeu.org/sites/default/files/file/Geneva17_28sept.pdf

Beatty, T. K., Blow, L., & Crossley, T. F. (2014). Cash by any other name? Evidence on labeling from the UK Winter Fuel Payment. *Journal of Public Economics*, 118, 86-96. doi:10.1016/j.jpubeco.2014.06.007

Bernanke, B. S. (2015). *Why are interest Rates so low, part 3: The Global Savings Glut*. Retrieved from https://www.brookings.edu/2015/04/01/why-are-interest-rates-so-low-part-3-the-global-savings-glut/

Christiano, L., Eichenbaum, M., & Rebelo, S. (2011). When Is the Government Spending Multiplier Large? *Journal of Political Economy*, 119, 78-121. doi:10.1086/659312

Cœuré, B. (2016). *Assessing the implications of negative interest rates*. Retrieved from http://www.ecb.europa.eu/press/key/date/2016/html/sp160728.en.html

Correia, I., Farhi, E., Nicolini, J. P., & Teles, P. (2013). Unconventional Fiscal Policy at the Zero Bound. *The American Economic Review*, 103, 1172-1211. doi:10.3386/w16758

Dudley, W. C. (2013). *Lessons at the Zero Bound: The Japanese and U.S. Experience*. Retrieved from https://www.newyorkfed.org/newsevents/speeches/2013/dud130521.html

Egan, M. (2013). *Nudge Database*. Stirling Behavioural Science Centre. Retrieved from https://www.stir.ac.uk/media/schools/management/documents/economics/Nudge%20Database%201.2.pdf

Eggertsson, G. B., & Krugman, P. (2012). Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach. *The Quarterly Journal of Economics*, 127, 1469-1513. doi:10.1093/qje/qjs023

Eggertsson, G. B., & Woodford, M. (2003). *Optimal Monetary Policy in a Liquidity Trap* (Working Paper No. 9968). National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w9968.pdf

European Central Bank. (n.d.). *Transmission mechanism of monetary policy*. Retrieved from https://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html

Feldstein, M. (2016). The Fed's Unconventional Monetary Policy. *Foreign Affairs*, 95(3), 105-115. Retrieved from https://www.foreignaffairs.com/articles/2016-04-18/feds-unconventional-monetary-policy

Friedman, M. (1969). *The Optimum Quantity of Money*. London, United Kingdom: Macmillan.

Gross, D. B., & Souleles, N. S. (2002). Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data. *The Quarterly Journal of Economics*, 117, 149-185. doi:10.1162/003355302753399472

Irwin, N. (2016, July 28). Helicopter Money: Why Some Economists Are Talking About Dropping Money From the Sky. *The New York Times*. Retrieved from http://www.nytimes.com/2016/07/29/upshot/helicopter-money-why-some-economists-are-talking-about-dropping-money-from-the-sky.html

Kent, C. (2015). *Monetary Policy Transmission – What's Known and What's Changed*. Retrieved from Reserve Bank of Australia: http://www.rba.gov.au/speeches/2015/sp-ag-2015-06-15.html

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London, United Kingdom: Macmillan.

Krugman, P. (1998). It's baaack: Japan's slump and the return of the liquidity trap. *Brookings Papers on Economic Activity*(2), 137-205. Retrieved from

https://www.brookings.edu/wp-content/uploads/2016/07/1998b_bpea_krugman_dominquez_rogoff.pdf

Krugman, P. (2013, February 5). The Japan Story. *The New York Times*. Retrieved from http://krugman.blogs.nytimes.com/2013/02/05/the-japan-story/

Lane, K., & Rosewall, T. (2015). *Firms' Investment Decisions and Interest Rates*. Reserve Bank of Australia. Retrieved from http://www.rba.gov.au/publications/bulletin/2015/jun/pdf/bu-0615-1.pdf

The Economist. (2016, February 4). Negative creep. *The Economist*. Retrieved from http://www.economist.com/news/leaders/21690031-negative-rates-club-growing-there-limit-how-low-rates-can-go-negative-creep

Reserve Bank of Australia. (2015). Box C: The Cycle in Dwelling Investment [Graph]. Retrieved from http://www.rba.gov.au/publications/smp/boxes/2015/may/c.pdf

Reserve Bank of Australia. (2016, August 3). Chart Pack: Interest Rates [Graph]. Retrieved from http://www.rba.gov.au/chart-pack/interest-rates.html

Reserve Bank of Australia. (2016, August 3). *Chart Pack: World Economy* [Graph]. Retrieved from http://www.rba.gov.au/chart-pack/world-economy.html

Romer, C. D. (2013). It Takes a Regime Shift: Recent Developments in Japanese Monetary Policy through the Lens of the Great Depression. In J. A. Parker, & M. Woodford (Eds.), *NBER Macroeconomics Annual* (Vol. 28, pp. 383-400). Retrieved from http://www.nber.org/chapters/c13004.pdf

The Economist. (2013, October 25). Something Wicksell this way comes. *The Economist*. Retrieved from http://www.economist.com/blogs/freeexchange/2013/10/are-real-rates-too-high-or-too-low

Stevens, G. (2014). *Challenges for Economic Policy*. Retrieved from http://www.rba.gov.au/speeches/2014/sp-gov-220714.html

Summers, L. H. (2014). U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound. *Business Economics*, 49, 65-73. doi:10.1057/be.2014.13

Williams, J. C. (2014). *Monetary Policy at the Zero Lower Bound: Putting Theory into Practice*. Hutchins Center on Fiscal & Monetary Policy at Brookings. Retrieved from

https://www.brookings.edu/wp-content/uploads/2016/06/16-monetary-policy-zero-lower-bound-williams.pdf

Windsor, C., Jääskelä, J., & Finlay, R. (2013). *Home Prices and Household Spending*. Reserve Bank of Australia. Retrieved from http://www.rba.gov.au/publications/rdp/2013/pdf/rdp2013-04.pdf

Woodford, M. (2013). *Forward Guidance by Inflation-Targeting Central Banks. Two Decades of Inflation Targeting: Main Lessons and Remaining Challenges* (pp. 81-120). Sveriges Riksbank. Retrieved from http://www.columbia.edu/~mw2230/RiksbankIT.pdf

Wren-Lewis, S. (2010). Macroeconomic policy in light of the credit crunch: the return of counter-cyclical fiscal policy? *Oxford Review of Economic Policy*, 26, 71-86. doi:10.1093/oxrep/grp034