



BANK OF ENGLAND

Speech

Ambidexterity

Remarks by

Andrew G Haldane, Executive Director, Financial Stability and member of the
Financial Policy Committee

Delivered at the American Economic Association Annual Meeting, Philadelphia on
3 January 2014

Published on 14 March 2014

I would like to thank David Aikman, Shaheen Bhikhu, Oliver Bush, Julia Giese, Daisy McGregor, Casey Murphy, Benjamin Nelson, Rhiannon Sowerbutts and Varun Paul for their help and comments.

For most of the post-war period, central banks have executed macro-economic policy with, at most, one hand – the monetary policy hand. It is generally felt that their dexterity improved steadily over that period. This culminated in a long period of low and stable rates of inflation and a steadily growing economy between the mid-1990s and 2007 – the “Great Moderation” [Goodfriend, 2007]. Central banks had becalmed both inflation and the business cycle – and had done so single-handedly. Or so it appeared.

But even while the economies of major advanced countries were an ocean of pre-crisis calm, a storm was brewing out in the credit market seas. When this storm hit in 2008, it caused a contraction in global output only rivalled by the Great Depression. Great Moderation turned abruptly to Great Recession. In response, questions began to be asked about whether monetary policy, while necessary, was sufficient to stabilise simultaneously the macro-economy and the financial system [Bank of England, 2009].

Unlike the Great Depression, central banks’ response to the Great Recession was swift and sizable. Central bank interest rates in most advanced economies quickly fell to close to their floor, while central bank balance sheets rose to new heights. Relative to money spending, central bank money supply is at its highest levels in the 15-year history of the European Central Bank, the 100-year history of the US Federal Reserve, the 131-year history of the Bank of Japan and the 319-year history of the Bank of England.

Accompanying these monetary policy changes has been a marked shift in regulatory philosophy. Since the crisis, financial regulation has become explicitly *macro-prudential* [Morris and Shin, 2008; Bank of England, 2011; Hanson et al, 2011]. This is an expression much-used, but generally little-understood. In a nutshell, it means that policymakers have begun using *prudential* means to meet *macro-economic* ends.

Those macro-economic ends include tempering swings in credit and leverage – the classic credit cycle. The credit cycle is a long-established feature of the financial landscape [Aikman et al, 2014]. Chart 1 shows its pattern in the UK over the past 130 years or so. The credit cycle is every bit as regular as the business cycle. But it differs from the business cycle in two critical respects: its amplitude is at least twice as large and its duration at least twice as long. Both are important for the design of macro-prudential policy regimes.

The larger amplitude of the credit cycle is one reason why credit booms have, more often than not historically, resulted in banking crises (Table 1). Because financial crises cause large and long-lived disruption to the economy, this suggests a strong empirical link between credit cycles and macroeconomic destabilisation. Or, put differently, curbing the credit cycle appears to be an important ingredient of broadly-based macro-economic stability.

In principle, monetary policy could be used to curb the credit cycle. In practice, the differing duration and synchronicity of the credit and business cycles means this is unlikely to work well. Pre-crisis experience illustrates well just that point. At the same time as the wider economy was operating in cruise control, credit

markets were in overdrive. Hitting these two birds – one flying high, the other low - with one (monetary policy) stone would have defied even the most astute marksman [King, 2013].

What is needed, in these instances, is a second instrument. In the language of Tinbergen [Tinbergen, 1952], two cycles and two objectives call for two instruments. This is where macro-prudential policy comes in. One of the aims of macro-prudential policy is to act counter-cyclically on the credit cycle, constraining credit booms and cushioning busts [Aikman et al, 2014]. In this role, macro-prudential policy is complementing monetary policy in its role of stabilising the macro-economy. Macro-economic policy then becomes, in effect, two-handed or ambidextrous.

Since the crisis, this two-handed approach to policy has been taken up actively by a number of countries internationally [IMF, 2013]. For example, counter-cyclical prudential policy is now baked into new international regulatory rules. The so-called Basel III reforms introduced for the first time a “Counter-cyclical Capital Buffer” (CCB) to be adjusted to counteract the credit cycle [BCBS, 2010]. While a small step for mankind, this is a giant one for bank regulators.

It is also, inevitably, something of a step into the unknown. What will be the impact of changes to the CCB on credit and growth? Will the two arms of policy (monetary and macro-prudential) be better than one? And, if so, what institutional arrangements best deliver those benefits? Policy experience from the recent past and the present can shed light on these questions.

The US Dotcom Bubble

As a first case study, consider the behaviour of the US economy after the bursting of the dotcom bubble in 2001. Chart 2 plots US official interest rates in the period just before and after this event. Interest rates fell sharply, from 6.5% at the beginning of 2001 to 1% by the middle of 2003, to cushion the effects of the financial headwinds created by the dotcom bubble popping.

Consider now what interest rate path would have been predicted had policy been responding mechanically to deviations of inflation from target and output from potential – in other words, following a standard “Taylor rule” [Taylor, 1993]. As Chart 2 shows, this would have implied a less dramatic fall in interest rates in the US. After the dotcom crash, a gap opened up between actual and Taylor-rule implied US interest rates. This was both sizable (on average, one or two percentage points) and persistent (lasting from early 2001 right up until summer 2008). Over that period, the Taylor rule suggested US monetary policy was looser than could be explained by inflation and output alone.

Whether by coincidence or causality, what happened next in US credit markets was dramatic. Chart 3 plots the ratio of US credit-to-GDP, relative to its long run trend, over the same period – the “credit gap”. This indicator has a special significance from a regulatory perspective because it will act as a guideline path for

the setting of the CCB once Basel III comes into effect. The US credit gap rose steadily from around 2001 up until 2008. Relative to its long-run trend, credit-to-GDP reached a peak of over 10 percentage points. By historical standards, this is a huge credit boom.

We can now ask ourselves the counter-factual question, how different might the world have looked had macro-prudential policy been available to assist monetary policy? Answering this question rigorously would require that we re-run the paths of policy, the economy and the financial system over this period – a full counter-factual simulation. That is beyond the scope of this paper.

As a shorthand, we can still do something simple but nevertheless informative about the way the world might have looked. This is done by simply redrawing the path of US banks' capital ratios on the assumption that the CCB had been in place. In particular, we can use the Basel III calibration of the link between the CCB and the credit gap to simulate a hypothetical path for US banks' capital ratios. Such an exercise is essentially identical to the common practice of constructing Taylor rules for monetary policy, as in Chart 2.

Chart 4 draws the macro-prudential policy-implied path of US bank capital ratios. In deference to the architect of modern theories of credit-induced instability, let us call this the "Minsky rule" [Minsky, 1986]. The path of the Minsky rule is, in many respects, the mirror-image of the Taylor rule. It suggests that hypothetical US banks' capital ratios would have been systemically and significantly tighter than their actual path between 2000 and 2009. In other words, a tight macro-prudential stance would have counteracted the effects of a loose monetary policy stance.

Although it is impossible to know for certain, it seems plausible that having this extra degree of policy freedom would have helped stabilise the US economy and financial system. A tighter bank capital regime would have tended to slow pre-crisis credit growth, thus constraining the boom. And more capital in the US banking system would have helped protect the wider economy from the credit crunch that followed the bust. In short, the boom-bust cycles in US credit and GDP would have plausibly been somewhat less severe had US policy been ambidextrous.

The Euro-zone crisis

As a second historical example, consider the behaviour of some euro-zone crisis countries. In the run-up to monetary union, monetary policy was loosened significantly in a number of the peripheral European countries whose interest rates converged on core euro-area countries. As Chart 5 illustrates, between 1995 and 1999 interest rates fell by between 3 and 6 percentage points in Ireland, Spain and Portugal. And in Greece between 1995 and 2001, interest rates fell by a remarkable 16 percentage points.

Whether by coincidence or causality, what happened next in credit markets in these countries was dramatic. The credit gaps in each of Spain, Portugal, Ireland and Greece widened significantly and continued widening

through the early part of this century (Chart 6). By 2008, these credit gaps stood at over 25 percentage points in Greece and Portugal, almost 40 percentage points in Spain and over 50 percentage points in Ireland. It is unlikely that any of these countries have previously seen credit booms on this scale.

It is useful again to rerun history and ask how macro-prudential policy might have looked over this period. Charts 7 and 8 give the “Minsky rule” paths for bank capital ratios in Spain and Ireland relative to their actual paths. As in the US, they show macro-prudential policy-implied capital ratios lying significantly above their actual paths, by progressively larger amounts. At their peak, Minsky rule paths for bank capital are more than twice their actual levels in Spain and three times their actual level in Ireland. Macro-prudential stringency would have counteracted the loosening of monetary policy.

For those peripheral European economies that experienced a credit boom, it is plausible to think a tighter macro-prudential stance would have helped reduce the severity of the global crisis of 2008 and the euro-area crisis of 2010. Tighter capital standards would have slowed pre-crisis credit growth, tempering the boom. And the extra capital built up in the European banking system would have helped contain some of the collateral damage from the resulting credit bust. In short, as in the US, the boom-bust cycles in credit and GDP in the euro-area would plausibly have been much less severe had policy been ambidextrous.

The Current Conjuncture

The third example is from the present. In response to the crisis, short-term interest rates in major advanced economies fell rapidly to their floor and have remained there (Chart 9). Aided and abetted by programmes of quantitative easing, real long-term rates have followed suit, falling to historically unprecedentedly low levels (Chart 10). These responses from monetary policy were a natural reaction to the opening-up of sizable output gaps in many advanced economies. Extraordinary times called for extraordinary measures.

Whether by coincide or causality, what has happened since in financial markets has been striking. The risk-taking cycle in some advanced economies has decisively turned. For example, issuance in the US high-yield market reached a record high in 2013, with half coming in a “covenant-lite” form (Chart 11). This is evidence of a renewed “hunt for yield” among investors [Stein, 2013].

We do not need to run a counter-factual experiment to determine the macro-prudential responses to these emerging pressures. A number of countries have already taken preventative macro-prudential action to forestall excessive risk-taking (Table 2). These measures are intended to forestall too rapid an accumulation of credit. In short, macro-prudential stringency is seeking to counteract any adverse risk-taking consequences of loose monetary policy.

In the UK, the Bank of England’s Monetary Policy Committee (MPC) has been pursuing a policy of extra-ordinary monetary accommodation. Recently, there have been signs of renewed risk-taking in some

asset markets, including the housing market. The MPC's macro-prudential sister committee, the Financial Policy Committee (FPC), has been tasked with countering these risks. Through this dual committee structure, the joint needs of the economy and financial system are hopefully being satisfied.

Some have suggested that having monetary and macro-prudential policy act in opposite directions – one loose, the other tight – somehow puts the two in conflict [De Paoli and Paustian, 2013]. That is odd. The right mix of monetary and macro-prudential measures depends on the state of the economy and the financial system. In the current environment in many advanced economies – sluggish growth but advancing risk-taking - it seems like precisely the right mix. And, of course, it is a mix that is only possible if policy is ambidextrous.

To underscore this point, Chart 12 plots a scatter of counter-factual Taylor and Minsky rules in the UK over the period 1964 to 2011. Points in the upper right and lower left quadrants signal monetary and macro-prudential policy operating in the same direction; points in the upper left and lower right, these policies operating in opposite directions. The points are fairly evenly scattered across all four quadrants. This tells us that the right macro-prudential/monetary policy mix depends critically on the relative needs of the economy and the financial system. But two arms beat one, hands-down.

Institutional Arrangements and Macro-Prudential Policy

Finally, if macro-prudential policy is a useful addition to the policy toolkit, who should have control over it? Here, a comparison with monetary policy experience is illustrative.

Macro-prudential policy faces many of the same dilemmas as monetary policy. The most serious of these is the time-consistency dilemma [Kydland and Prescott, 1979; Chari and Kehoe, 2013]. In the monetary policy sphere, this manifests as a desire to loosen policy today to support the economy when tightening to control inflation tomorrow would be more appropriate. In the macro-prudential sphere, it manifests as a desire to loosen regulation to support today's growth when tightening to counter tomorrow's crisis would be more appropriate. In both cases, policy faces an inter-temporal trade-off in its objectives – a myopia trap.

The time-consistency dilemma is likely, if anything, to be even more acute when fighting crises than when fighting inflation [Haldane, 2013]. The reason is that credit cycles last at least twice as long as business cycles. The myopia trap for macro-prudential policy is even more painful than for monetary policy. That is why "This Time is Different" has so often in the past been the pre-crisis refrain [Reinhart and Rogoff, 2008].

In the monetary policy sphere, an institutional solution has been applied to this myopia problem. Specifically, in most countries these days monetary policy decision-making has been delegated to a long-sighted, arms-length agency – typically, an independent central bank. This is now accepted best practice globally [Goodfriend, 2007]. Because it faces a time-consistency dilemma every bit as acute, the self-same logic

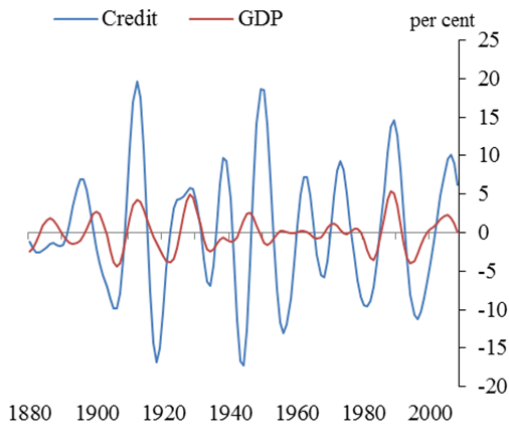
applies to macro-prudential policy. In other words, one safeguard against financial crisis myopia comes from placing the levers of macro-prudential policy in the hands of an arms-length, independent central bank [Haldane, 2013].

There is a second reason for doing so. Experience from the past and the present suggests that using the monetary and macro-prudential arms in tandem may have helped stabilise simultaneously the financial sector and wider economy. That calls for monetary/macro-prudential co-ordination. Such co-ordination is more likely to be happen if these two arms are attached to a single body and head. Monetary and macro-prudential policy then represent two halves of the same central bank brain.

In practice, these arguments have not, so far at least, entirely won the day internationally. A significant number of new macro-prudential frameworks have emerged internationally in the past few years. In some cases, including in the UK, central banks have been handed macro-prudential responsibilities. This has enabled explicit co-ordination between the monetary and macro-prudential arms when tackling the joint needs of the economy and financial system – for example, in the UK through joint meetings of the Bank’s MPC and FPC.

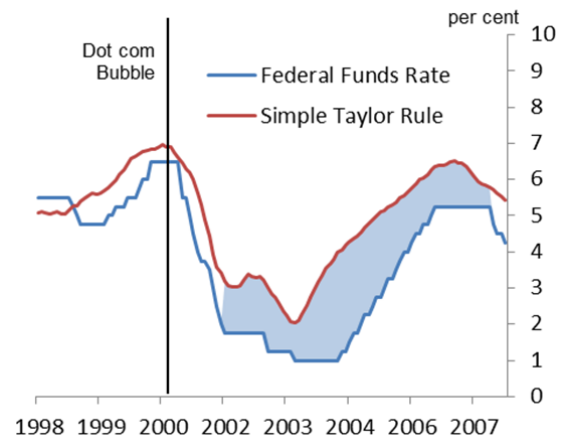
But in a number of other countries, responsibility for macro-prudential policy has been located outside of central banks [IMF, 2013]. We have a mixed model. In this institutional respect, macro-prudential policy today resembles monetary policy perhaps a generation ago. It is, of course, still early days for macroprudential regimes. Monetary policy took a generation, if not two, of trial and error to find its feet. For policymakers finding their feet today, doing so will be far easier using two arms than one.

Chart 1 Credit and business cycles



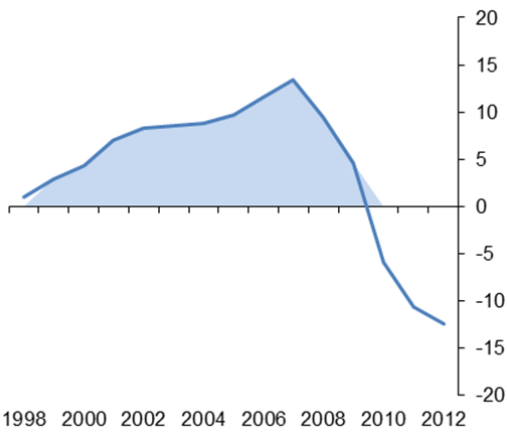
Source: Bank calculations

Chart 2 US interest rates



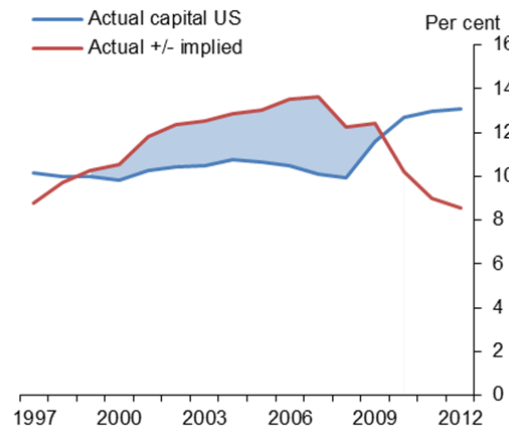
Source: Thompson Reuters DataStream; Bank calculations

Chart 3 US Credit Gap



Sources: BIS, OECD and Bank calculations

Chart 4 Actual and implied capital in the US



Sources: BIS, OECD, FDIC and Bank calculations

Chart 5 Policy rates in Europe

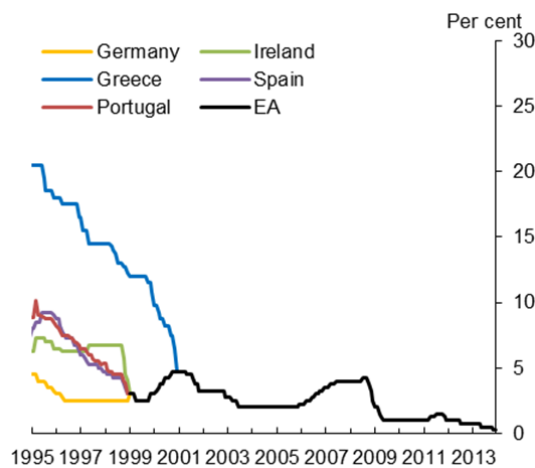


Chart 6 Credit gaps in Europe

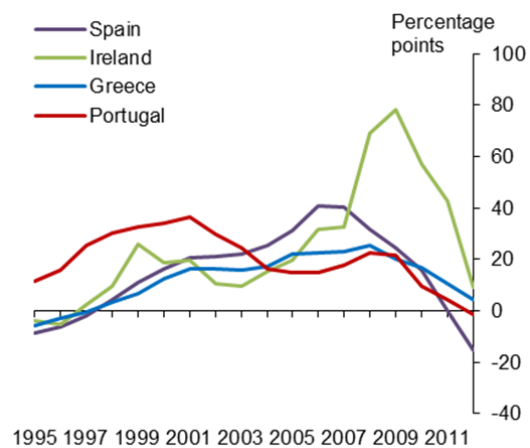
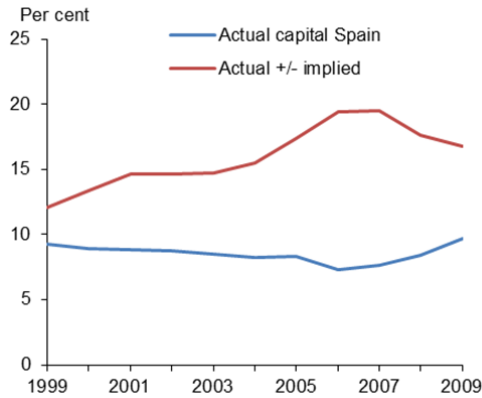
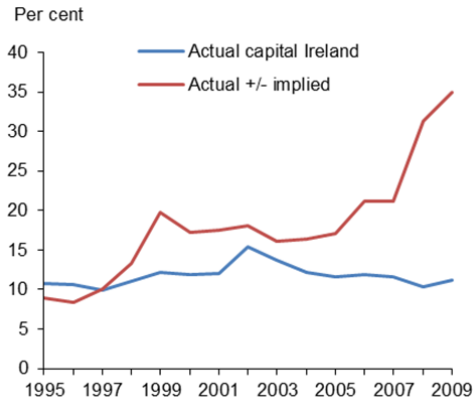


Chart 7 Bank capital ratios in Spain



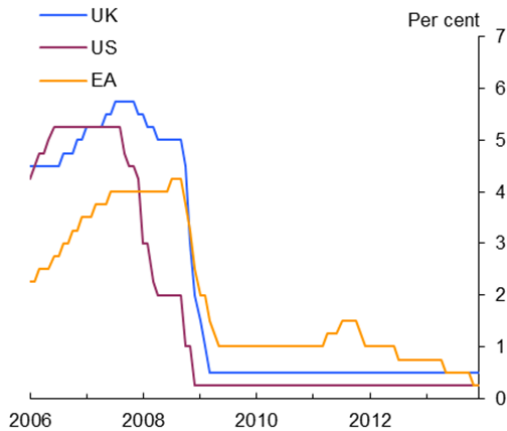
Sources: BIS, OECD and Bank calculations

Chart 8 Bank capital ratios in Ireland



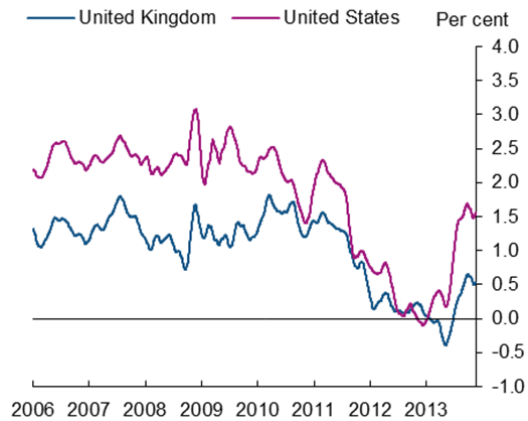
Sources: BIS, OECD and Bank calculations

Chart 9 Policy rates in advanced economies



Source: Thomson Reuters DataStream

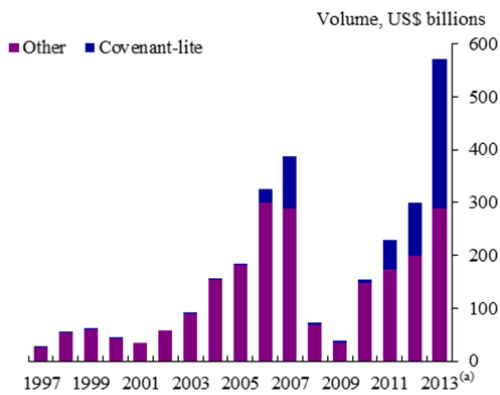
Chart 10 Real long-term interest rates



Sources: Bloomberg and Bank calculations.

(a) Five-year real interest rates five years forward, derived from the Bank's index-linked government liability curves. One-month moving averages.

Chart 11 Covenant-lite and other high-yield loan issuance in the US



Source: JPMorgan Chase & Co.

(a) Volume as of 15 November 2013.

Chart 12 Taylor-Minsky rule for the UK

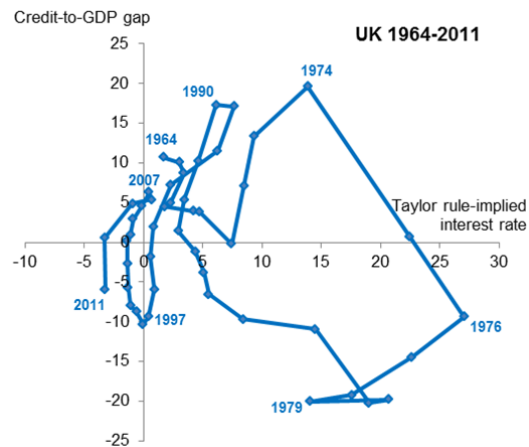


Table 1 The credit cycle and subsequent crises

	Total peaks 1880-2008*	Crisis years** within 5 years following a peak	% peaks with crisis years within the following 5 years
AUS	9	6	67%
CAN	11	6	55%
DEU	9	2	22%
DNK	10	4	40%
ESP	8	5	63%
FRA	5	3	60%
GBR	9	7	78%
ITA	11	8	73%
NLD	8	1	13%
NOR	13	5	39%
SWE	10	4	40%
USA	9	6	67%
	112	57	51%

* Interwar data missing for most countries. Data coverage incomplete for other countries e.g. only post-1945 data available for France.

** Defined as years in which either a banking crisis or a currency crisis or both ("twin crisis") occur.

Source: Bordo et. al. (2001) and Bank calculations. Reproduced from Aikman et al (2010).

Table 2 International experience with macro-prudential tools

Country	Action	Other
Sweden	Risk weight floor on residential mortgages of 15%, from an average of 5%.	Followed LTV limit. Announced intention to increase to 25%.
Switzerland	Sectoral capital buffer of 1% on residential mortgages	Limited impact so far. Also followed an increase in risk weights on high LTVs.
Hong Kong	Repayment criteria toughened, a risk weight floor of 15% for residential mortgages, LTV on car park spaces and commercial property	Action on car park spaces followed leakages of the house price exuberance into other sectors
New Zealand	Restriction of new high LTV lending to 10% of new loans	Has since announced a number of exceptions to the 10% limit
Singapore	Debt service ratio, reduced repayment periods, tightened LTV, increased land supply	Part of a series of measures.
Norway	Countercyclical capital buffer of 1% from July 2015	
UK	Removed incentives for household lending in Funding for Lending scheme. FPC given ability to recommend changes to affordability criteria on mortgage lending.	

References

- Aikman, D, Haldane AG and Nelson, B** (2010) "Curbing the credit cycle":
<http://www.bankofengland.co.uk/archive/Documents/historicpubs/speeches/2010/speech463.pdf>
- Aikman, D, Haldane AG and Nelson, B** (2014 forthcoming) "Curbing the credit cycle", The Economic Journal.
- Bank of England** (2009), "The role of macroprudential policy", Discussion Paper:
<http://www.bankofengland.co.uk/publications/Documents/other/financialstability/roleofmacroprudentialpolicy091121.pdf>.
- Bank of England** (2011), "Instruments of macroprudential policy", Discussion paper:
http://www.bankofengland.co.uk/publications/Documents/events/ccbs_workshop2012/paper_kapadia.pdf.
- BCBS** (2010). Basel III: A global regulatory framework for more resilient banks and banking systems.
- Chari, VV and Kehoe P** (2013), "Bailouts, time inconsistency and optimal regulation", NBER working paper no. 19192
- De Paoli, B and Paustian, M** (2013), "Coordinating monetary and macroprudential policies", Staff Reports 653, Federal Reserve Bank of New York.
- Goodfriend, M.** (2007) "How the world achieved consensus on monetary policy", Journal of Economic Perspectives, 21(4), pages 47-68.
- Haldane, A. G.** (2013), "Why institutions matter (more than ever)":
<http://www.bankofengland.co.uk/publications/Documents/speeches/2013/speech676.pdf>
- Hanson, Samuel G., Anil K. Kashyap, and Jeremy C. Stein.** 2011. "A Macroprudential Approach to Financial Regulation." Journal of Economic Perspectives, 25(1): 3-28.
- IMF** (2013), "Key aspects of macroprudential policy"
- King, M. A.** (2013), "A Governor looks back – and forward":
<http://www.bankofengland.co.uk/publications/Documents/speeches/2013/speech670.pdf>
- Kydland and Prescott** (1977), "Rules rather than discretion: the inconsistency of optimal plans", Journal of Political Economy, 85 (3) pages 473-492.
- Minsky, H** (1986): "Stabilising an Unstable Economy", Yale University Press
- Morris S and Shin, H-S** (2008) "Financial regulation in a system context", Brookings Papers on Economic Activity.
- Reinhart, C and Rogoff, K** (2008): "This Time is Different: A Panoramic View of Eight Centuries of Financial Crises", NBER Working Paper 13882
- Stein** (2013), "Overheating in Credit Markets: Origins, Measurement, and Policy Responses"
<http://www.federalreserve.gov/newsevents/speech/stein20130207a.htm>
- Taylor, J** (1993): "Discretion versus policy rules in practice", Carnegie-Rochester Conference Series on Public Policy, no 39, pp 195–214.
- Tinbergen, J** (1952): "On the Theory of Economic Policy", North-Holland Pub Co, 2nd edition