

Financial Instability: are Counter Cyclical Capital Controls the answer?

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Executive Summary

The introduction of Counter Cyclical Capital Controls (CCCCs) has been suggested as one of a number of proposals for banking regulatory reform both nationally and internationally. Lord Turner described the introduction of variable bank capital requirements as “an almost definite”. The Basel Committee on Banking Supervision (BCBS) is to present a proposal by the end of the year. The potential costs and benefits of changes to capital adequacy rules are certainly non-trivial: one study by the FSA found that the operation of CCCC over the last decade could have reduced total lending by over 5%.¹ Another study finds that a change in capital and liquidity requirements might affect the growth rate by the equivalent of 7% GDP over time.²

The aim of CCCCs is to produce a system where different levels of bank capital are mandated at different points in the economic cycle. When the economic environment is strong returns on capital are high, bad loan losses are low and there are strong incentives for banks to grow their loan books. To dampen pro-cyclical behaviour banks would therefore be expected to hold higher levels of capital (e.g. 7% tier 1). Conversely, during periods of economic weakness banks would be allowed to run lower capital ratios (e.g. 4% tier 1) to encourage and support lending to the economy.

Where do CCCCs fit in to the debate about financial reform?

CCCCs are one of a number of tools that are being proposed to manage the overall amount of leverage. Since 2000 Spain has used Dynamic Provisioning (DP) to dampen pro cyclical behaviour on the part of banks, and the Basel Committee is working to apply this idea globally. A report by the World Bank Group found that “dynamic provisions have contributed to the stability of the Spanish financial system and allowed Spanish banks to deal with the crisis from a much better starting point”³. They did not, however, tame the lending cycle in the build up to the global banking crisis⁴. CCCCs go further than this and aim not just to counter the pro-cyclical effects of the current capital adequacy regime, but to actively reduce the extent to which bank behaviour increases the amplitude of the economic cycle.

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A discussion is also underway about overall leverage limits. Canada has tight limits on the overall leverage of banks and this helps to explain why it has not had a single bank failure or bailout. The US has a somewhat looser cap on leverage, and the EU has been discussing some kind of leverage cap. In 2007 Canadian banks were, on average, 18x levered, while US banks were 26x levered and European banks were 40x levered.

The other major new regulatory weapon being touted - particularly by the Bank of England - is “contingent capital”. Regulators would make banks issue debt that will be converted into equity in the case of a crisis and when a bank breaches its capital requirements. The crisis would have to be systemic and defined by an external regulator. Sound banks would avoid this forced conversion and, as that option is highly unattractive (it dilutes the value of the equity), the idea is that the scheme would encourage less risky behaviour in banks and encourage banks that anticipate losses to raise more equity⁵. For this reason Mervyn King has compared contingent capital to a kind of “insurance” providing a “large capital cushion available automatically before insolvency.”

Quite apart from reforms to capital requirements, there are a series of parallel debates about other forms of risk regulation, including liquidity requirements.

Key questions about the design of CCCCs

National or international implementation? CCCCs are currently being discussed at Basel on the basis of global standards⁶, yet the case for keeping this power at a national level is a strong one. First, asset bubbles do not occur uniformly across countries. An example of this is the differing movements in credit expansion and asset prices in the USA, Spain, Germany, Japan and China between 2003 and 2006⁷. There is no point in having a counter cyclical policy if it is not used at the correct time in the cycle, and as cycles differ globally, setting capital requirements solely at a global level would not be effective. Research by the National Institute of Economic And Social Research suggests that a uniform increase in capital and liquidity requirements might have benefits in the UK but costs in the US and Eurozone, suggesting that different capital requirements might be appropriate in different countries.⁸

Secondly, the costs of bank bailouts during financial crises are borne by governments individually; as Bank of England Governor Mervyn King put it, “global banking institutions are global in life, but national in death”⁹. Thirdly Spain’s experience with DP suggests that CCCCs are feasible even without international agreement. Despite initial reluctance from Spain’s banks DP did not make their financial sector uncompetitive, in fact banks like Santander have come out of the crisis in a much stronger competitive position¹⁰.

Rules based or discretion based? Paul Tucker has stated that the Bank of England is “doubtful that macroprudential instruments could be operated by a rule.”¹¹ Charles Goodhart has argued that the Bank of England already has powers to raise requirements but chose not to use them in the build up to the financial crisis and believes that “Only a rule, perhaps introduced in the aftermath of a financial crisis, will be a sufficient commitment device to ensure that such an unpopular step is taken when required”¹². However, it could be argued that interest rate decisions have functioned well in controlling price inflation despite not being subject to a prescriptive formula that determines what interest rates should be. The Geneva report proposes that capital requirements should increase if credit growth and leverage exceed a pre-agreed level set to be consistent with the long term target for nominal GDP. But it is difficult to imagine that one mechanical rule of this kind will prove correct in all circumstances.

Who should control CCCCs? The Turner Review is non-committal on the question of which quasi autonomous institution or set of institutions should administer CCCCs, and outlines a number of alternatives. Given that prudential regulation, such as capital controls, has an important role in managing macroeconomic and financial stability, it seems natural that they should sit with the Bank of England.

Varying overall capital requirements, or risk weights for types of asset? Paul Tucker has argued against simply changing the overall capital requirement, and in favour of changing the risk weighting for particular types of assets: “Why are we doubtful about simply varying headline capital requirements through the credit cycle? Imagine that the authorities judge that a boom in lending to (or related to) a particular sector of the economy had become overly exuberant. To make it topical, assume that this was lending to the shadow banking system (say conduits, SIVs etc). The authority raises the minimum capital ratio by X%. The affected banks could respond in a number of very different ways. This could include the perverse reaction of cutting lending to unexuberant parts of the real economy, while continuing to lend on overly relaxed terms to, in this example, the exuberant shadow banking system.”¹³ This makes particular sense if CCCCs are conceived mainly as a way to *prevent* the emergence of bubbles in particular sectors. However this critique is less relevant if the goal of CCCCs is simply to make it less likely that banks will fail once a crisis has emerged.

How would CCCCs interact with other policy instruments? Changes to the level of the capital requirement would obviously interact with monetary policy making. Other potential instruments, like an overall leverage ratio, might also interact with CCCCs. For example, if banks are at their leverage cap, they might be unable to respond to a reduction in capital requirements. Intellectually the case for a maximum leverage ratio seems to be driven by an argument that risk measures will always be flawed. The hope is that coupling a single leverage ratio with the existing regulations will provide a “backstop”¹⁴

More fundamental challenges for CCCCs

Judging the balance of costs and benefits - and the fundamental difficulty of setting the optimal level of capital requirements: As Andrew Haldane, Bank of England Executive Director of Financial Stability noted, the debate surrounding optimal capital levels for banks has been “chronically and perhaps surprisingly under researched”. Mervyn King has noted that, “A higher ratio is safer than a lower one, but any fixed ratio is bound to be arbitrary.”¹⁵ According to research for the FSA, “it is likely that increased capital requirements will increase the cost of credit or reduce its volume to some extent. By how much, however, is very difficult to assess.”¹⁶ It is by no means clear what the impact on lending of changes in the reserve ratio would be, never mind the wider economic impact. In many cases work being undertaken at present is requiring whole new economic models to be built. This suggests a cautious approach is required.

Will the markets allow banks to hold less capital in a downturn? Some argue that the market would make banks hold more capital during downturns irrespective of lower regulatory requirements. Professor Alan Morrison argues that “the market demands far higher capital requirements before it is comfortable with a bank in a time of crisis than the regulators do... one of the problems with counter-cyclical regulation, [is] that, when you attempt to relax capital requirements... it may have very little effect because the market is requiring such massive levels of core capital.” Whether this is the case is unclear. If it was the case then the effect of CCCCs would be to increase the average capital ratio over the cycle. This would potentially damage the UK banking systems’ competitiveness, although it might nonetheless still damp the lending cycle as reserves would have rise by less in the aftermath of a crisis.

Judging the economic cycle: At their core CCCCs require some judgements regarding the shape of economic cycles and perhaps most pertinently, the creation of asset price bubbles. There are clearly a very large number of serious economic and philosophical issues surrounding the analysis and identification of asset bubbles. This point can be demonstrated by the difficulty that popular economic, political, and business commentators have had in establishing the point at which the future impacts of genuinely innovative products or markets turn from being overwhelmingly positive to negative or overvalued. Just contemplate the railways, radio, dotcom and securitisation booms.

Introduction

The introduction of Counter Cyclical Capital Controls (CCCCs) is one of the most widely supported changes to banking regulation, both in the UK and internationally. Lord Turner described the implementation of a policy to vary banks capital requirements as “an almost definite”¹⁷. It has been agreed in principle by the Financial Stability Forum (FSF) and the Basel Committee on Banking Supervision (BCBS)¹⁸, both of which include the major international stakeholders.

CCCCs have been a subject of academic interest for many years but it is only recently that they have gained traction as a potential piece of global banking regulation (with the exception of a related system in force since 2000 in Spain, discussed further below). The credit crunch has profoundly shaken regulators’ and policy makers’ faith in the current regulatory framework; leading to a new openness towards bold ideas. CCCCs seem well-placed to fill this void because they appear to address some of the problems highlighted by the financial crash of 2007 - 2008. The widely accepted view is that banks built up unacceptable levels of risk on their balance sheets during the period of almost continuous growth from the early 90s. Steady growth led to a systematic misperception and mispricing of risk.

Under the current framework capital requirements are based on risk weighted assets so the less risky an asset is deemed to be, the more of it that can be held for a given level of capital¹⁹. Risk measures were typically backward looking, so the longer the period of stable growth the less risky these assets were perceived to be and the more banks took on without increasing their capital. This left the banking system unprepared for any downturn. Crucially, even those risks that may have been sustainable in one bank became a *systemic* risk to the economy when they were replicated across the whole financial system. As the Geneva Report into “The Fundamental Principles of Financial Regulation”²⁰ explains, “regulation implicitly assumes that we can make the system as a whole safe by simply trying to make sure that individual banks are safe. ... a fallacy of composition”²¹.

The attraction of CCCCs is that they seem to counteract some of these dangers. The “macro-prudential” risks that accompany periods of growth would be reduced by making banks hold more capital against their assets during growth periods. This increased capital requirement would reduce risk-taking by increasing the cost of expanding the balance sheet. Conversely in a downturn banks would have their capital requirement reduced allowing for greater expansion in lending. In addition, when a downturn does arise banks will have higher reserves of capital, making them less likely to need state assistance.

Yet, despite the apparent attraction of CCCCs, key questions remain unanswered. Who will operate CCCCs and how will they make their decisions? What are the benefits and costs of CCCCs? What can we reasonably expect from them? Ultimately, are they the correct answer to the problem of how to regulate banks?

What are counter cyclical capital controls?

Capital is a crucial concept in banking regulation. Many of the proposed adjustments to the banking system have focused on improving the quality and quantity of capital, or finding new ways to use capital requirements to achieve policy goals. The Conservatives' White Paper²² on banking suggests using capital requirements to address areas ranging from "high risk" proprietary trading to "risky bonus structures", as well as CCCCs²³. It is unsurprising that capital is under scrutiny given the precipitous collapse in the banking sector; as Lord Turner recently commented "the shock absorbers in the financial system are ultimately the capital requirements"²⁴.

Here we follow the broad definitions of capital used in the Turner Review²⁵. These are: Core Tier 1, Tier 1, and Tier 2.

- Core Tier 1 (CT1) is common equity and retained earnings
 - Common equity is stock that comes with voting rights
 - Retained earnings are the proportion of net income that is not paid out as a dividend
- Tier 1 contains CT1 and preferred stock
 - Preferred stock usually carries no voting rights and has priority over common equity with regard to dividends and in the case of liquidation
- Tier 2 is subordinated debt, this is the last debt that is paid if a company goes into receivership or is closed

There are also hybrid instruments that do not fit neatly into these categories. The "Definition of Capital Subgroup" at the Bank for International Settlements exists to resolve issues related to the classification of different types of capital.

The minimum levels of capital banks are required to hold - as defined by the Basel and Basel II agreements and implemented by national regulators - are in place as an insurance against unexpected losses that a bank may incur²⁶. This is why although there is an overall capital requirement (expressed as a percentage of assets) it is weighted to take into account the varying risks of different assets (otherwise known as Risk

Weighted Assets). This paper will discuss some of the criticisms levelled at the global regulatory system but will avoid a full theoretical discussion of Basel II.

CCCCs require increases in capital requirements during a financial/economic growth phase and decreases during a downturn. Many of the fundamental parts of a working policy are still yet to be decided upon and so it is not possible to give a definitive description of CCCCs. However, the Turner Review (the FSA's response to the challenges posed to regulation by the banking crisis) gives a good high level description:

"...either regulatory discretion or a formula would define a minimum required capital which would increase in periods of strong economic growth (for instance from a minimum required CT1 ratio of 4% to 7% at the peak). Banks would need to meet this rising ratio in the upswing, but would be permitted to run down the ratio towards the absolute minimum in an economic downturn".²⁷

So are CCCCs a new policy? Some commentators have noted the similarities between a discretionary CCCCs policy and a traditional money supply policy that the UK abandoned in the mid-1980s in favour of directly manipulating the interest rate. The idea is that by manipulating the ratio of capital to assets CCCCs are in effect controlling the supply of "broad money"²⁸ to the economy. This is because the higher the capital requirement the fewer assets a bank can hold, as these "assets" are in effect loans to the wider economy. This higher requirement then leads to a reduction of the supply of money. For those who lament the end of the government's attempts to control the quantity of money and focus on the "price" (i.e. the interest rate), CCCCs may represent a welcome return to effective prior principles.

One should draw a distinction between CCCCs as described above and a related idea known as Dynamic Provisioning (DP). DP has been used in Spain since June 2000 and is of particular interest to policy makers as it is an example of a counter cyclical financial policy already in operation. DP uses a statistical method to estimate long run expected losses within a portfolio. When losses are less than their long run average, a buffer is built up. These buffers can be used in an economic downturn to meet losses. In a DP system, banks' incomes are not measured net of actual losses (as it is currently) but net of contributions to the expected loss provisions²⁹. Expected losses are charged against the current year's P&L and unused provisions would be unwound if and when a portfolio matures³⁰. DP is essentially an accounting principle that recognises that actual losses will differ from expected losses on a year by year basis. If actual losses are less than expected losses in periods of growth this leads to procyclicality as bankers become overconfident and relax lending practices. The desire to counteract procyclical banking practices through regulation is at the heart of both DP and CCCCs. It is important to note that banks do make general provisions against unspecified losses - it is

just that these provisions are often insufficient. This is because historically general provisions have been defined subjectively, not tax deductible and could only be recorded as regulatory capital up to a certain level³¹. DP counters these disincentives by making significant general provisions compulsory.

Under CCCs, an external authority decides that the financial sector is growing at an undesirable rate and increases the cost of banking through increasing the capital requirement to slow this process. DP works differently by determining a measure of long run expected losses and then adjusts accounts through the cycle as actual losses fluctuate around this figure. In Spain the aggregate annual provisioning (including the dynamic provision) equals average annual net losses suffered by the banking system over the last decade³². This system has not been without problems, particularly as the future downturn and associated defaults are, in the words of Charles Goodhart (a member of the LSE's Financial Services Group and one of the main proponents of CCCs), "hypothetical and exceptional, rather than tangible and individually identifiable"³³.

Dynamic provisions are a way to cover incurred losses not yet individually identified on specific loans at a time when these losses are being built up on balance sheets³⁴. The issue arises of how one accurately measures the long run expected loss and the risk that banks could deliberately manipulate expected losses in order to "smooth profits", making it harder for investors and depositors to assess a bank's financial condition³⁵ (although some analysts dispute this danger³⁶). As DP has been in force in Spain since 2000 and thus through the credit crunch, it exists as a rare case study both for DP itself and counter cyclical measures in general. The lessons of this "Spanish experiment" will be discussed later.

Policy makers are also reassessing the efficacy of a leverage ratio, which is employed in the US. A leverage ratio rule is one that requires a bank to maintain a maximum level of leverage (assets to capital)³⁷. Such a rule is undesirable in isolation as banks would be incentivised to hold riskier assets for a given level of capital than in the current system of risk weighted assets. The argument for a maximum leverage ratio as a complement to the risk weighted assets rules is driven by the understanding that risk measures will always be flawed. In the run up to the credit crunch European banks built up very high leverage levels whilst still adhering to risk weighted assets capital requirements by investing in assets that appeared low risk according to the measures and therefore required less capital. Time has shown that assets such as Mortgage Backed Securities were far riskier than their credit ratings suggested, and other instruments that were considered low risk due to their high liquidity, lost that advantage when the financial system was put under stress³⁸.

A leverage ratio in this context is a crude rule of thumb to try to prevent such risky leverage from building up. The hope is that coupling a single leverage ratio with the existing regulations will provide a "backstop"³⁹

to ensure sufficient capital is maintained even if risk is being wrongly calculated. The US and Canada have always maintained a leverage ratio on top of other banking provisions. This obviously did not prevent a severe banking crisis in the US but, as the Swiss central banker Phillipp Hildebrand explained, “it seems clear that the leverage ratio has helped protect the US banking system from even greater calamity”^{40,41}.

How would CCCCs work?

All signatories to the Basel II agreements already have the power to increase capital requirements above those specified in Pillar 1 of that agreement⁴². There was no provision for signatories to reduce capital requirements below those specified in Pillar 1, and so there is a clear floor on how low capital requirements could be set in the down phase. Nonetheless, it is certainly the case that Basel II offers some scope for variation in capital controls. However, there is a gulf between simply having the power to act and an effective CCCCs system. As Olivier Blanchard, Chief Economist at the IMF explains: “*pro-cyclical capital ratios, in which capital ratios increase either in response to activity or to some index of systemic risk, sound like an attractive automatic stabilizer. [...] The challenge is clearly in the details of the design, the choice of an index, the degree of pro-cyclicality.*”⁴³

Beyond the high-level description given in the previous section there are two major operational questions for CCCCs:

- What process should be used to determine the capital requirement?
- Where should the burden of prudential risk management lie?

The discussion amongst policy-makers in the UK has been much more focused on the second, and arguably less important, question of administration while not nearly enough attention has been paid to the first. This policy “blind spot” is inconsistent with the enthusiasm across the political spectrum for such a system.

What process should be used to determine the capital requirement?

This question can be further broken down: how is macroprudential risk/ the economic cycle assessed? Will the decision to increase or decrease capital requirements be largely discretionary or determined by set rules?

Current policy thinking is somewhat vague on how systemic risks will be assessed. Turner highlights some general areas that could be considered to assess the systemic risk in the financial sector, although no clear measures of what would constitute risks big enough to trigger CCCCs. These include⁴⁴:

- The extension of credit to the economy, the pricing of credit, and levels of borrower leverage, and the implications for the risks which both borrowers (households, individuals and companies) and lenders are running.
- The pattern of maturity transformation and resulting liquidity risks e.g. the extent to which banks are increasing or decreasing maturity mismatches and are relying on wholesale funding or on 'liquidity through marketability'.
- Asset prices in property, equity and securitised credit markets and their possible relationship to long run equilibrium levels.
- Leverage within the financial system, whether at the institutional level (bank capital to asset ratios) or embedded in collateral margins and 'haircuts'.
- The roles being played in the financial system by different institutions and in particular whether the institutions not currently subject to prudential requirements (e.g. hedge funds) are increasingly operating in a way which could create systemic risk.

Turner's list is full of the right sorts of areas needed to assess macroprudential risk, but it lacks any sense of how these areas will be used to make an overall assessment of the level of systemic risk. There is no discussion in the Government's or the Conservatives' literature on how the assessment of systemic risk build-up will translate into a decision on changing the capital requirements. The presumption may be that decisions will be taken in the same manner as the MPC, not following a set formula but instead the judgement of a panel of experts. Goodhart contends that this would not be sufficient,⁴⁵ making the point that the Bank of England already has powers to raise requirements but chose not to use them in the build up to the financial crisis: "only a rule, perhaps introduced in the aftermath of a financial crisis, will be a sufficient commitment device to ensure that such an unpopular step is taken when required"⁴⁶. It could be argued, however, that interest rate decisions have functioned well in controlling price inflation despite not being subject to a prescriptive formula that determines what interest rates should be. Furthermore there are many divergent reasons why the Bank of England may not have taken more decisive action on macroprudential risk, these range from a lack of management focus on prudential risk to inherent flaws in the inflation targeting regime⁴⁷.

The Geneva Report is more specific, proposing two measures that could be combined with concrete rules to create a workable CCCCs system. The report proposes that capital requirements should increase⁴⁸:

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- If credit growth and leverage exceed a pre-agreed level set to be consistent with the long term target for nominal GDP.
- As banks' reliance on short term funding increases (this reflects the fact that banks like Northern Rock had an overreliance on short term funding; a situation which made them less stable but was not constrained by regulation at the time).

An important assumption in the above criteria is that capital charges could be varied by institution (as strongly recommended by the report⁴⁹), both because banks pose different risks based on their size and types of activity and because their behaviour differs. This would, however, involve far higher information requirements in terms of determining individual institutions' contributions to systemic risk.

The obvious objection to a rule based system is that no rule may be better than a bad one. If regulators are going to be *obliged* to follow a set of metrics in making their decisions, then policy makers will have to be fairly certain that they are the right ones. This problem will be discussed in more detail later.

Where should the burden of prudential risk management lie?

Sovereignty

The Government's white paper acknowledges that CCCCs are currently being discussed at Basel on the basis of global standards⁵⁰, yet the case for keeping this power at a national level is a strong one. First, asset bubbles do not occur uniformly across countries. An example of this is the differing movements in credit expansion and asset prices in the USA, Spain, Germany, Japan and China between 2003 and 2006⁵¹. There is no point in having a counter cyclical policy if it is not used at the correct time in the cycle and as cycles differ globally, setting capital requirements solely at a global level would blunt the effectiveness of the policy. Second, the costs of bank bailouts during financial crises are borne by governments individually; as Bank of England Governor Mervyn King put it, "global banking institutions are global in life, but national in death"⁵². National regulators will therefore be the institutions that are most closely concerned with the management of prudential risk, as they suffer the burden of blame if a crisis occurs.

The international interconnectedness of the modern financial system does, however, imply a level of global co-ordination for prudential risk management. The recent crisis was in part driven by the regulatory arbitrage that existed between regimes in different continents: to prevent it from happening again, such arbitrage should be ironed out. The speed at which the crisis developed also highlights the risk of contagion

between different countries and different markets; a level of supranational regulation might mitigate this effect.

A system that has a component of national discretion and a component set by a body such as the IMF could work as an efficient hybrid. For example, national regulators can supervise at a national level, whilst a supranational body monitors the level of global financial risk. The global supervisor could issue a warning if systemic risk is building up: a traffic light system perhaps, or a DEFCON rating. National regulators would be expected to amend their supervision accordingly. If the supranational group changed to a red warning status, due to a concentration of global derivative positions or if liquidity became scarce for example, then regulators could be compelled to make a statement explaining how they intend to deal with the new threat. The financial markets would then distribute capital according to the new level of risk and return: a country that fails to address the warning might be punished by capital outflows, or by investors demanding higher yields to compensate for the concomitant higher risk. Alternatively, it would be possible to have a component of the capital requirement with a weighting that varied automatically according to the traffic light setting. Unfortunately, either variant of such a system has the disadvantage of being complex and requiring states to agree to ceding power over their financial sector to an international body.

Institutional Control

At the national level the question becomes which institution should administer CCCCs? Decisions on risk build up and appropriate responses are technical in nature, as such, most plans for the administration of CCCCs involve some combination of experts from the regulator and the central bank. The Turner Review is non-committal on the question of which quasi-autonomous institution or set of institutions should administer CCCCs. It outlines the three alternatives as⁵³:

- The Bank of England making judgements on the macro-prudential risks and the FSA having the power to decide what response to make.
- The Bank of England both making the judgement and implementing the controls.
- The Financial Stability Committee (a Bank of England committee created by the Banking Act 2009), supplemented by members from the FSA, making the judgements and implementing the controls.

The review expresses a mild preference for the third alternative and emphasises the need for a combination of macroeconomic expertise and insights into specific institutions. To this end, “combining both the top management of the Bank and the FSA and specialist staff, will be essential”⁵⁴. The Government’s White Paper is not explicit about which group will oversee CCCCs but the assumption must be that it will be the

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new Council for Financial Stability (as outlined in the paper⁵⁵) as its remit is to “analyse and examine emerging risks to the financial stability of the UK’s economy, and coordinate the appropriate response”⁵⁶. This committee would consist of members from the Treasury, the FSA and the Bank of England but would be chaired by the Chancellor of the Exchequer (this would involve a level of political control not envisaged by Turner).

The danger of political interference preventing timely implementation of CCCCs is a real one. Increasing capital requirements and thereby slowing short term growth of lending in the financial sector and probably the economy poses self evident problems for an elected official working to a political timetable. For example, if house price bubbles led to a shortage of available houses for first time buyers, a Chancellor would be conflicted between: 1) raising the capital requirement thus cooling down the banking sector but also restricting access to credit for prospective buyers, or 2) allowing the expansion of credit to satisfy voters’ demands⁵⁷.

The Conservatives’ plan⁵⁸ is different, in keeping with their broader strategy to reform the way the financial sector is regulated. They argue that responsibility should rest with a Financial Policy Committee (FPC) to mirror in name at least the Monetary Policy Committee (MPC). Membership would include the Governor of the Bank of England and the Deputy Governor for Financial Stability (both also on the MPC), the CEO of their proposed Consumer Protection Agency, the proposed Deputy Governor for Financial Regulation, and appointed external experts. Political involvement would be at arm’s length; the remit would be set by the Chancellor but no politicians would sit on the committee.

Goodhart argues strongly that issues like CCCC should be handled by the Central Bank. This is because CCCCs try to control macroprudential risk whereas regulators are set up to avoid microprudential risk through enforcing rules on specific institutions. As he explains: *“Central Banks are, and should be, more economics oriented and focused on the interaction of markets and institutions. FSAs are, and should be, more focused on the behaviour of each individual institution, and will be primarily staffed by accountants and lawyers. Their viewpoints, concerns and attitudes will differ”*⁵⁹.

The nature of prudential risk

Goodhart’s approach is underpinned by the assumption that there is a strong distinction between macro and micro prudential risk. The Conservatives’ plan to scrap the FSA⁶⁰ reflects the idea that, from a regulatory perspective, such a separation is not especially helpful. Although there are some important regulatory measurements that are essentially micro-prudential such as the amount of Tier 1 capital a particular bank

has, one cannot sensibly assess risk in a purely micro or macro way. For example: assessing the risk in the financial system as a whole entails assessing the potential for the behaviour of one large bank (or a collection of small ones) to destabilise the financial system, just as assessing the risk of one bank involves understanding behaviour of sections of the financial system (such as the market for overnight money).

If CCCCs are seen as a form of money supply control then it could be argued that they should be administered by the Monetary Policy Committee. There are two main reasons one might disagree with this. First, although the effect of CCCCs can be to constrain the supply of broad money, its primary purpose is seen to be to control bank's behaviour. So although its consequence may be monetary, its focus is different from that of the MPC. Second, the credibility of the committee derives from having an unambiguous goal of reaching inflation targets. Any other activity that the MPC engaged in might reduce this credibility or distract from this core purpose.

Varying overall capital requirements, or risk weights for different types of asset?

Paul Tucker has argued against simply changing the overall capital requirement⁶¹:

“Why are we doubtful about simply varying headline capital requirements through the credit cycle? Imagine that the authorities judge that a boom in lending to (or related to) a particular sector of the economy had become overly exuberant. To make it topical, assume that this was lending to the shadow banking system (say conduits, SIVs etc). The authority raises the minimum capital ratio by X%. The affected banks could respond in a number of very different ways. This could include the perverse reaction of cutting lending to unexuberant parts of the real economy, while continuing to lend on overly relaxed terms to, in this example, the exuberant shadow banking system.”

“That kind of thing really could happen if such lending seemed to offer terrific returns. What lies behind this problem is, of course, that quite often a credit boom is at least initially concentrated in one or a few sectors of the economy. That being so, the appropriate instrument needs to be able to work with a degree of granularity... For example, in the upswing of the latest credit cycle, it would have been helpful to withdraw the 0% weight on 364-day lines of credit, which fuelled the shadow-banking system of conduits etc; and to have raised the weights on super-senior credit exposures held in marked-to-market trading portfolios. Of course, none of this would be straightforward. There would be a lot to be learned about the transmission mechanism. And using risk weights as the instrument would require judgments on the relative as well as absolute risks of different types of exposure. I must stress, therefore, that we are outlining these thoughts precisely so that they can be explored and challenged.”

This makes particular sense if CCCCs are conceived mainly as a way to prevent the emergence of bubbles in particular sectors. However this critique is less relevant if the goal of CCCCs is simply to make it less likely that banks will fail once a crisis has emerged.

There is some precedent for such an approach. Spain, as well as introducing Dynamic Provisioning, largely avoided Special Investment Vehicles (SIVs) (off balance sheet entities which multiply risk by avoiding regulations) by simply imposing an 8% capital charge against SIV assets⁶².

The case for CCCCs

Advantages of CCCCs

CCCCs are intended to check the excesses in the financial sector brought about by a combination of the economic cycle, the psychology of market participants, and distortions generated by accounting regulations. Importantly, they do not attempt to alter directly any of these factors but rather counteract them. When the appropriate authority notices that banks are behaving in a way that poses unacceptable systemic risk they increase the capital requirements across risk weighted assets. This will increase the cost of holding these assets and thus reduce the growth rate or bring down asset holdings. This in turn will reduce the build up in systemic risk and reduce the likelihood of a financial crisis. During a downturn in the financial sector, banks will have higher reserves and thus will be better able to deal with increased losses and falling investor confidence. Turner summarises the goals of CCCCs as to⁶³:

- decrease the probability of bank default or of public authorities having to take steps to prevent default;
- decrease the probability of system-wide bank failures; and
- reduce the extent to which bank behaviour increases the amplitude of the economic cycle. A counter-cyclical capital regime would help constrain the growth of bank lending in the upswing and in the downswing would reduce the extent to which banks need to cut back on lending to maintain capital ratios when capital is depleted by losses.

As well as the specific goals mentioned above, CCCCs have a number of advantages that distinguish them from other potential policy avenues. First, they operate on the level of the accepted problem, namely the build up in systemic risk. It has been established that behaviour that may be safe for one bank (or a number of small banks) becomes dangerous when replicated by enough market players. That is why regulation that

looks at banks in isolation can never adequately address systemic risk. The inputs into a CCCCs decision are an assessment of the systemic risk that banks' behaviour poses. This means the existence of a CCCCs system will force regulators to monitor the fluctuations in systemic risk and over time refine their measures of it. This is important given the powerful psychological incentive of market players to ignore systemic risk build ups during periods of accelerating profits and economic growth⁶⁴. The fact that macroprudential risk assessment is not tied to any specific decision on the part of regulators under the current regime allowed it to be forgotten in the hubris of the boom. This will no longer be possible when an authority is mandated to regularly determine capital requirements based on macroprudential risk.

CCCCs also conform to the policy maxim one target, one instrument, otherwise known as the Tinbergen principle⁶⁵. In this case the target is macroprudential risk build up and the instrument capital requirements; this allows better control of the desired outcomes than other possible arrangements. Examples of set-ups that do not obey this maxim would be if variations in capital requirements were used to achieve a variety of outcomes (what if the goals contradicted each other?), or if multiple tools were used to control an overheating financial sector (how would we understand which of the different levers was responsible for which effect?).

Creating a new instrument to control a new target allows policy makers to achieve their macro-prudential goals without disturbing other important areas of the economic/regulatory framework; the most important of which are monetary policy and accounting regulations.

There are many valid criticisms of the tripartite structure and the behaviour of its members over the last decade; however, one area that was long regarded an unquestionable success was the control of consumer price inflation. Monetary policy in the UK and in most comparable economies is based around manipulating the short term interest rate to control inflation, normally towards a specific inflation target. The higher the rate the greater the return needed to cover the cost of the money used making fewer investments viable and slowing the growth in banks assets. In the UK the Bank of England was given independence over the setting of interest rates with a goal of targeting 2.5%, and then 2%, inflation⁶⁶. Until March 2007 these targets were met with remarkable consistency. Critics have argued that the MPC could have slowed the massive pre-credit crunch rise in asset values by increasing interest rates, but did not because asset price inflation was not within its remit.

CCCCs can be adopted without dramatically altering current global banking regulations. This may seem perverse given the flaws in the current system highlighted by the financial crisis; however, notwithstanding

the criticisms of Basel II et al, current regulations do represent a number of sound principles of micro-prudential regulation⁶⁷. Acknowledging their flaws does not equate to advocating their replacement. Until a credible alternative to the current arrangement has been found, the onus is on finding complementary regulations that can mitigate their downsides. CCCCs can significantly impact the procyclical biases inherent in Basel II without replacing the whole system. This means it can be easily implemented into the current set-up without the need for a major round of global banking regulation reform that could take years.

Dynamic provisioning – a related regime that has been tried in practice

DP in Spain uses a statistical method to estimate long run expected losses within a portfolio. When losses are less than their long run average, a buffer is built up. These buffers can be used in an economic downturn to meet losses. As explained above, DP is not the same as CCCCs but is close enough to be a useful example. In Spain dynamic provisions make up 10% of bank's net operating income on average and so understandably were not popular with banks. However by the end of 2007 total accumulated provisions amounted to 1.3% of the total consolidated assets of Spanish deposit institutions;⁶⁸ dynamic provisions had contributed to the build up of this buffer. These assets are currently being drawn down during the banking downturn. While they did not prevent the banking decline in Spain, a World Bank Group report highlights that "dynamic provisions have contributed to the stability of the Spanish financial system and allowed Spanish banks to deal with the crisis from a much better starting point"⁶⁹. They did not, however, tame the lending cycle in the build up to the global banking crisis⁷⁰.

The Spanish example has two lessons for CCCCs. First, that counter cyclical policies can be successfully implemented without international agreement, despite what is asserted by both the government⁷¹ and the opposition⁷². While it is true that the Basel Committee is discussing the issue of CCCCs, the experience from Spain highlights that it does not follow that without international agreement CCCCs are unfeasible. Despite initial reluctance from Spain's banks DP did not make their financial sector uncompetitive; in fact, banks like Santander have come out of the crisis in a much stronger competitive position⁷³. The possibility of CCCCs being implemented on a sub-global scale does not seem to have been properly considered despite the fact that differences in banking regulation between countries have always existed: the US did not fully implement Basel II, both the US and Canada have gross leverage ratios, and Spain implemented DP, for example. Clearly the loss in competitiveness from having a more regulated banking system can sometimes be offset by the benefits of having a system that is more secure than competitors'.

The second lesson is that counter cyclical policies can work to limit the effect of a financial downturn. Although DP did not work in Spain to control the lending cycle, the Geneva Report confidently predicts that

CCCCs would be effective: “we do not think that [DPs] quantitative effect has been to moderate the credit cycle by as much as our mechanism could”. In fact the report goes on to describe DP as “counter-cyclical-lite”⁷⁴.

The case against CCCCs

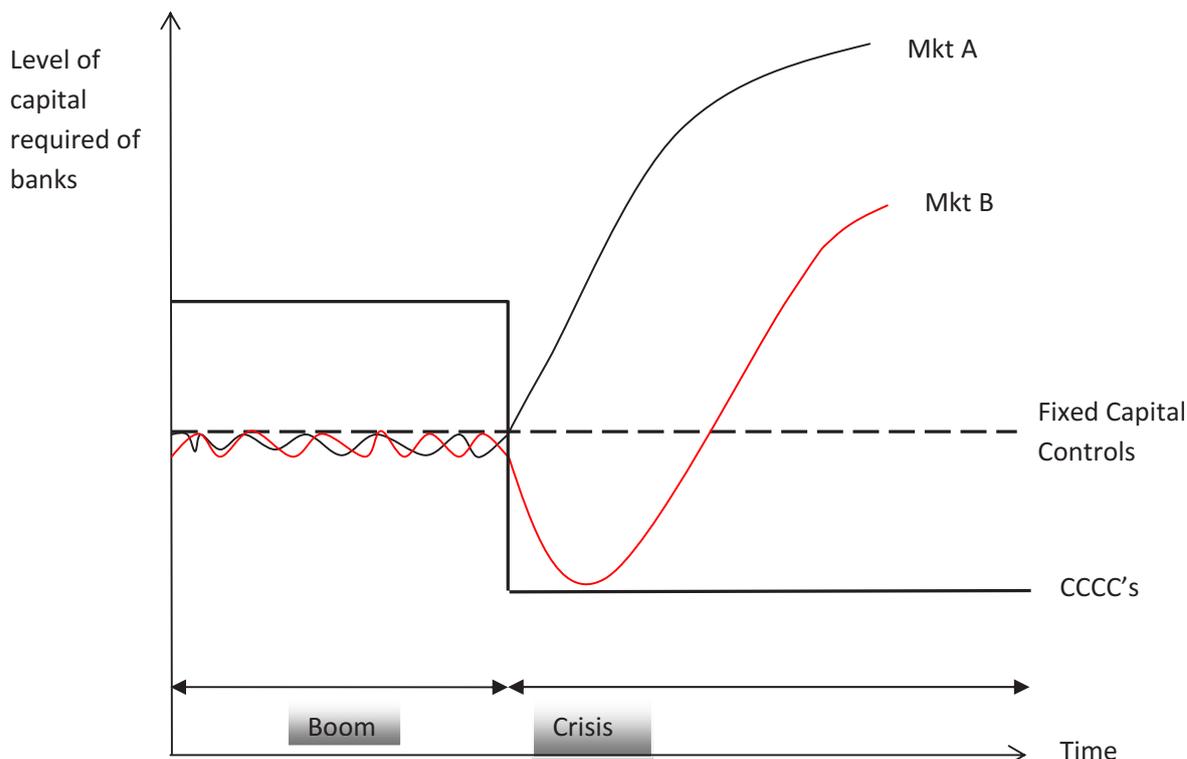
Capital

The first argument raised in the case against CCCCs is that they will involve higher levels of capital on average, thereby increasing banks’ costs.

Most of the thinking around CCCCs does not envisage capital requirements varying around the current level throughout the cycle, but rather the whole range of capital requirements starting from a higher floor (e.g. 4% for Core Tier 1⁷⁵). Increasing bank’s capital requirements increases their costs; this is true both for CCCCs and other proposals that seek a permanent increase in capital requirements. Some of this cost may be offset by lower costs of debt and equity as banks are considered less risky⁷⁶, but there is a lack of firm evidence as to the extent of this effect. This is not a controversial point - in fact increasing the cost of banking during overheated periods is the goal of CCCCs – but given the large employment benefits and tax take of the financial services industry in Britain, the burden of proof must be on those who wish to introduce CCCCs to demonstrate that they will effectively mitigate against a potential financial crisis.

Second, it can be argued that, during a boom, CCCCs will be high and binding whilst in a bust, though CCCCs may be low, they will be irrelevant, since investor demand for higher levels of capital to be held to insure against risk will imply that banks would in fact choose capital levels far in excess of the CCCC⁷⁷. This calls into question whether, as a *counter cyclical* policy, CCCCs are practically possible. The result of CCCCs could be a massive increase in the cost of banking throughout the cycle without any commensurate increase in the ability of regulators to act in a counter cyclical fashion. The added danger being that such a big increase in the cost of doing business in the UK could cripple the financial sector as banks relocate.

Figure 1: Stylized representation of capital required of banks by regulators and the Market



Source: Policy Exchange

Consider the graph above, showing the level of capital controls plotted against time. The horizontal straight line is a simplified representation of traditional “fixed capital controls” that do not vary across the economic cycle (we set aside, for the purposes of exposition, issues such as whether Basel II is pro-cyclical). The lines Mkt A and Mkt B give two possible “worlds” for the level of capital markets would demand from banks in the absence of regulatory capital controls. The line marked “CCCCs” lies above the “fixed capital controls” line in the period marked “boom”, capturing the idea that CCCCs aim to “lean against the wind” by being tighter than traditional capital requirements in boom periods. Then, in the period marked “crisis”, the CCCCs lie below the “fixed capital controls”, capturing the idea that capital requirements will be reduced significantly in a period of financial crisis.

The objections of critics such as Professor Alan Morrison can be understood as the suggestion that the market will behave most like the Mkt A “world”, that is to say, in the period of boom the CCCCs will force

firms to hold capital higher than traditional fixed capital controls (as intended). But in the period of bust the Market itself will require firms to hold more capital than would be required by traditional capital requirements anyway. This would render the reduced capital requirements of CCCCs in the “crisis” period irrelevant. In practice, in the boom firms would be constrained by the CCCC and in the crisis constrained by the Market.

What an advocate of CCCCs would contend, instead, is that Market behaviour will be more like that in the Mkt B “world”, that is to say, once crisis hits there will be an initial period in which the Market would require less capital of firms – e.g. because when all firms have less capital. It is therefore less of a concern that any one firm has reduced capital (having reduced capital because of, say, a 75% percentage reduction in share prices as it is a less powerful signal that the company is in distress than it would be if it were only that company in the situation). This might mean that the Market would grant a transition period until it demanded more capital, rather than (as per a traditional fixed capital control) demanding a rectifying capital rise immediately. Then, over time, the Market begins to demand higher levels of capital, eventually exceeding the traditional fixed capital threshold.

If the Market behaves as per the Mkt B line, then a CCCC will involve more than simply an increase in the level of capital – there will be a (potentially crucial) period in which the reduced CCCC does indeed mean firms holding less capital. Those who favoured the suspension or reduction of Basel II-implied limits in early 2008 might contend that that was precisely such a period.

A connected problem is a lack of fundamental understanding of how different levels of capital affect banking behaviour. Andrew Haldane, the Bank of England’s Executive Director for Financial Stability, has said that determining the optimal level of capital for a bank is an area “which has been chronically, and perhaps surprisingly, under-researched”⁷⁸. It is extraordinary that the effect of different capital levels, which form such a large part of current regulatory thinking, is not properly understood. The current Basel levels reflect a practical compromise, not figures that have been mathematically determined from first principles⁷⁹. This is a serious problem for CCCCs. While it is understandable for Lord Turner to argue that, “there is a reasonable case that [capital requirements] should be higher”⁸⁰, it is quite a different proposal to gradually increase and decrease capital requirements in order to affect behaviour in the financial sector. Of course it is impossible to predict the exact effect of a one point rise in capital requirements but it would seem highly imprudent to base a key piece of regulation around a tool that is so poorly understood.

Implementation

It is much easier to spot a boom after it has happened. This is a key lesson of economic history and one that no amount of wishful thinking on the part of policy makers can change. A key problem is determining what differentiates healthy rapid growth from a boom as innovations can lead to very rapid rises in asset values or economic growth that are sustainable⁸¹. In fact, during the build up to the current financial crisis many were arguing that new tools like securitisation and derivatives were making the financial system more stable by diversifying risk and therefore permitted a faster expansion in the sector. The distinction is even harder to pin down as what was sustainable can become unsustainable as retail investors and speculators move into a market. Even the most experienced investors find pricing a genuinely new innovation difficult, as economist Andrew Lilico explains⁸²:

It is often the case with major innovations, of all sorts (not just financial), that when they first arrive people aren't sure how best to use them, and sometimes over-estimate how much difference they will make in the short term. The uncertainties associated with these innovations frequently lead people to over-pay for innovations initially. Most people think this was the case with the railways, with the light bulb, with radio, with dotcom companies.

But even if a regulator thinks that it has happened upon a boom in the financial sector the next question becomes, is it systemic? This is even harder to judge. The dotcom boom and bust was dramatic in its trajectory – the Nasdaq fell from 5049 on the 10th March 2000 to 1114 on 9th October 2002 – but did not lead to a deep global recession.

This difficulty is reflected in the lack of detail in terms of the metrics that might be used to determine a build up in systemic risk. The Turner Review has set out a wish list of areas to be considered in determining systemic risk but no sense of how these areas will translate into a decision on systemic risk. The Geneva Report states that the “macro-prudential factor” should be calculated by using the risk factors as inputs in “quantitative impact studies complemented by detailed hypothetical theoretical modelling exercises”⁸³. This is akin to a football manager announcing his grand plan for victory to be “strategy, tactics, and team selection”. Having a clear scheme for calculating macro-prudential or systemic risk is very important as without it, it will not be possible to have CCCCs determined via a rule based formula as proposed by Goodhart.⁸⁴

There are also questions around whether a rule based system based on defined metrics is desirable or even feasible. Dissenting voices like Thomas Philippon of the Stern School of Business believe not⁸⁵:

"I very much doubt that we can agree on a set of objective measures of 'excessive' credit expansion (let alone bubbles). I think that the best we can expect is a powerful regulator running systemic stress tests based partly on historical data and partly on subjective forward looking scenarios".

Strict rule based systems are only really desirable when there is a clear understanding of how that rule works. As has been shown in this analysis, there is a large degree of confusion as to the effect of the "output" of any CCCCs rule (i.e. the change in the level of capital). When this uncertainty is coupled with doubts over the "input" (i.e. the definition and measurement of systemic risk) it calls into question whether a formula based rule would be appropriate for CCCCs. On top of this the conceptual problem with any set of strictly defined rules is that market pressure will always encourage banks to find ways around them. A good example of this was the subversion of Basel II in the run up to the recent financial crisis. Between 2003 and 2007 the holdings of Special Investment Vehicles (SIVs) grew from \$100 billion to \$300 billion⁸⁶. These off balance sheet vehicles were not subject to standard measures of gross or risk adjusted leverage and thereby avoided that form of regulatory control, despite adding to the vulnerability of the system. Formulaic rules also pose difficulties in the case of a crisis where the normal assumptions that underpin a formula may no longer apply.

One way to avoid the problem of overly prescriptive rules is some form of discretion; something that the Conservatives have made a central part of their regulatory philosophy. Discretion is useful in cutting out loop holes and avoiding damaging regulation but in the case of CCCCs it carries its own problems. The MPC has a large amount of discretion but inflation, unlike systemic risk, has a concrete definition. The fact that systemic risk is a less tangible concept leaves the risk that under a discretionary system, hubris on the part of regulators, abetted by intense lobbying from the banks could lead to a renewed indifference to systemic risk. Equally, there is the risk that discretion leaves too much scope for over-conservativeness, unnecessarily impeding bank activities and thereby lending for investment, and thus limiting economic growth. The discretionary case also carries costs as the more opaque the process of determining capital requirements the greater uncertainty there is for banks.

Finally, increased capital requirements cannot be enforced overnight in the manner of an interest rate decision. There has to be a reasonable time delay to allow banks to move up to the new higher level - a period of one year has been proposed as a suitable gap⁸⁷. This raises the prospect of the new capital

requirements constantly coming in too late to be truly counter cyclical. It can be argued that the effect of interest rate changes also take 18 months to two years to fully work through the transmission mechanisms. How much of a problem this is depends on how quickly we believe that bubbles are likely to form.

Conclusions

The move towards CCCCs is has gained a lot of momentum. The Geneva Report reflects this attitude: “The need is to achieve counter-cyclical regulatory mechanism(s). Details of how this might be achieved are important but secondary”⁸⁸. This is an extraordinary statement for a group of otherwise sober academics and financial professionals to make. There are many important questions about the design of CCCCs which remain to be resolved.

The questions raised in this note suggest that CCCCs are unlikely to be a magic bullet for all financial problems. However, the broad concept of including in capital requirements the possibility that they be reduced in times of crisis is, in our view, correct and an important insight. It would give financial authorities an extra tool to intervene with if they saw fit, increasing their ability to respond to crises. We suggest that it is fairly clear that:

- The best way to employ CCCCs is on the basis of of supervisory discretion, rather than some automatic or mechanical rule.
- It also seems unlikely that any international CCCCs would be appropriate for a range of different economies at different points in the cycle.
- If CCCCs are to be introduced they will need to be carefully coordinated with monetary policy, and it seems natural that they should be controlled by the Bank of England.

Much of the debate about CCCCs depends on how much you hope they are likely to achieve. The more sophisticated conception of the Bank of England that risk weightings for different types of assets might be used to prevent the emergence of bubbles in particular sectors might be seen at one extreme. A more minimalist conception of CCCCs would see it, like DP in Spain, as a way to reduce the impact of financial crises when they do happen.

It remains to be seen whether CCCs could actually allow banks to hold less capital in a downturn. And it will be not necessarily be easier for those in charge of CCCs to determine where they are in the economic cycle than any other authority. It is also clear that the effects of capital reserve changes are still poorly understood, so a cautious approach is required.

References

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- ¹ FSA, Bank regulation, capital and credit supply: Measuring the impact of Prudential Standards, September 2009
 - ² FSA, Turner review conference discussion paper, October 2009, citing FSA Occasional Paper 38 (forthcoming)
 - ³ The World Bank Group, p. 4
 - ⁴ The World Bank Group, p. 5
 - ⁵ Raghuram Rajan, Cycle-proof regulation, economist.com
 - ⁶ HM Treasury, Reforming financial markets, July 2009, p. 58
 - ⁷ Goodhart, p. 16
 - ⁸ NIESR, Barrell et al, "Banking crises and optimal bank regulation" 2009
 - ⁹ Turner, p. 36
 - ¹⁰ Danny Forston, Spain's Santander, barely touched by the credit crunch, swoops on the victims, The Times Business Section
 - ¹¹ Paul Tucker, Barclays annual lecture, 22 October 2009
 - ¹² Goodhart, p. 11
 - ¹³ Paul Tucker, Barclays annual lecture, 22 October 2009
 - ¹⁴ House of Commons, p. 33
 - ¹⁵ Mervyn King, Speech to Scottish business organisations, Edinburgh, 20 October 2009
 - ¹⁶ FSA, Turner review conference discussion paper, October 2009
 - ¹⁷ House of Commons Treasury Committee, Banking Crisis: regulation and supervision, Fourteenth Report of Session 2008-09, p. 31
 - ¹⁸ Financial Services Authority, The Turner Review: A regulatory response to the global banking crisis, March 2009, p. 118
 - ¹⁹ By extension during downturns more defaults make risks appear higher leading to greater risk aversion and more capital being held back for a given level of assets.
 - ²⁰ International Center for Monetary and Banking Studies & Centre for Economic Policy Research, The Fundamental Principles of Financial Regulation, Geneva Reports on the World Economy 11
 - ²¹ Geneva, p. xxi
 - ²² The Conservative Party, From Crisis to Confidence: Plan for Sound Banking, Policy White Paper, July 2009
 - ²³ Conservative Party, pp. 5-6
 - ²⁴ House of Commons, p. 32
 - ²⁵ Turner, p. 56
 - ²⁶ Expected losses are covered by provisions, reserves and current year profits.
 - ²⁷ Turner, p. 62
 - ²⁸ This is all monetary instruments from most to least liquid.
 - ²⁹ Bank of England, Dynamic Provisioning: Issues and application, p. 130
 - ³⁰ Bank of England, p. 132
 - ³¹ Bank of England, p. 129
 - ³² Turner, p. 63
 - ³³ Goodhart, Procyclicality and Financial Regulation, p. 11
 - ³⁴ Jesus Saurina, Dynamic Provisioning: The Experience of Spain, The World Bank Group, p. 4
 - ³⁵ Bank of England, p. 135
 - ³⁶ World Bank Group, p. 4

³⁷ The effectiveness of such a policy depends on how capital is defined, Geneva (p. 36) shows that the leverage of Northern Rock to be 90% at the end of 2007 if capital is defined as common equity (stake held by the bank's owners), but a much less worrying 40% if capital includes total equity (which includes preferred shares and subordinated debt).

³⁸ Turner, p. 67

³⁹ House of Commons, p. 33

⁴⁰ Philipp [Hildebrand](#), Is Basel II Enough? The Benefits of a Leverage Ratio, The Financial Markets Group Lecture, LSE, p. 10

⁴¹ The role of leverage ratios is a good example of how interconnected regulatory systems have become. Europe had Basel II with its risk weighted assets but no leverage ratio, the US lacked Basel II but had a leverage ratio. This meant that banks engaged in regulatory arbitrage highly leveraging in Europe with relatively safe assets whilst putting their riskier assets in less leveraged US banks.

⁴² Turner, p. 61

⁴³ Olivier [Blanchard](#), The Crisis: Basic Mechanisms, and Appropriate Policies, IMF Working Paper, p. 21

⁴⁴ Turner, p. 83

⁴⁵ Goodhart, p. 12

⁴⁶ Goodhart, p. 11

⁴⁷ For a more detailed discussion of the problems with inflation targeting see Andrew [Lilico](#), "Beyond Inflation Targeting".

⁴⁸ Geneva, p. xix

⁴⁹ Geneva, p. 34

⁵⁰ [HM Treasury](#), Reforming financial markets, July 2009, p. 58

⁵¹ Goodhart, p. 16

⁵² Turner, p. 36

⁵³ Turner, p. 84

⁵⁴ Turner, p. 85

⁵⁵ HM Treasury, p. 138

⁵⁶ HM Treasury, p. 138

⁵⁷ Although this is a legitimate difference of policy objective, it is important to remember that by embedding a particular policy goal and tool in an institution independent of political control, that goal is given primacy over other competing objectives.

⁵⁸ Conservative Party, p. 25

⁵⁹ Goodhart, p. 16

⁶⁰ Conservative Party, p. 20

⁶¹ Paul Tucker, Barclays annual lecture, 22 October 2009

⁶² Gillian [Tett](#), Spain's banks weather credit crisis, Financial Times

⁶³ Turner, p. 61

⁶⁴ Goodhart, p. 12

⁶⁵ Goodhart, p. 12

⁶⁶ The cut in target came about when the measure of inflation changed from RPIX to CPI; in fact Britain has had an inflation target since 1992.

⁶⁷ Goodhart, p. 11

⁶⁸ The World Bank Group, 'Total accumulated provision', p. 3.

⁶⁹ The World Bank Group, p. 4

⁷⁰ The World Bank Group, p. 5

⁷¹ HM Treasury, pp. 86-87

⁷² Conservative Party, p. 37

⁷³ Danny [Forston](#), Spain's Santander, barely touched by the credit crunch, swoops on the victims, The Times Business Section

⁷⁴ Geneva, p. 38

⁷⁵ Turner, p. 62

⁷⁶ Turner, p. 57

⁷⁷ Professor Morrison, “massive levels of core capital” would be required by the market during a crisis, House of Commons, p. 35

⁷⁸ House of Commons, p. 32

⁷⁹ Turner, p. 55

⁸⁰ House of Commons, p. 32

⁸¹ HM Treasury, p. 91

⁸² Andrew Lilico, “What Killed Capitalism?”, p. 5

⁸³ Geneva, p. 34

⁸⁴ Goodhart, p. 12

⁸⁵ Philippon

⁸⁶ Turner, p. 20

⁸⁷ Policy Exchange, ‘Beyond Inflation Targeting’, p. 24

⁸⁸ Geneva, p. 38

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