Reforming the banks in the UK. An impact assessment of the draft Bill and alternative capital requirements.

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Introduction

On Friday, 12 October 2012 the UK Government published a draft of the banking reform bill in order to implement "key elements" of the recommendations put forward by the Independent Commission on Banking (henceforth ICB) led by Sir John Vickers. This is the first piece of legislation revising the regulation of the financial sector. Banks will be required to comply fully with ICB recommendations by 2019.

The crisis impacted strongly on the financial sector in Britain where the current level of employment in the industry is far from its peaks in 2007-8. In Scotland, in particular, employment in financial services fell from 105,300 (9.29% of industry total in the UK) in 2008 to 84,400 (7.90%) in 2011.[1] Furthermore, the collapse of some major banks and the consequent government intervention has increased the share of what is formally defined in the statistics as public sector employment in financial services from a mere 1.40% in 2008 to 19.65% in 2011. In Scotland this is even more evident given that the share of public sector employment in financial services has increased from 2.09% in 2008 to 37.15% in 2011.

If the industry has been hit harshly, the public finance has been affected even more. The government intervention in the aftermath of the crisis has taken the form of bank recapitalisation, credit guarantees, special liquidity scheme, and asset protection scheme. The first one has been the most expensive by far, with the government buying shares in troubled banks and currently holding shares in RBS and Lloyds. The total investment has been of £20,313 million in Lloyds (whose value at 31 March 2012 was just £9,278m) and of £45,527 million in RBS (worth £25,054m at 31 March 2012). Northern Rock was also in public ownership since February 2008 when the government injected £1,400m in the bank. After splitting the company in two, the "good one" was sold for £747 million to Virgin Money on 1 January 2012, while the "bad" one is now managed by UK Asset Resolution (UKAR). Bradford & Bingley was also brought into public ownership in 2008 and, after selling its branch network and retail deposit accounts to Santander, it is currently managed by the UKAR. The aim is to run down their closed mortgage books and to pay back the Government loan, which on 31 December 2012 was £46,582m.[2] Differently from bank capitalisation, the other forms of government interventions provide guarantee, liquidity or insurance to banks, which pay fees for such services. Finally, the Financial Services Compensation Scheme, which provides insurance to bank depositors, ran out of cash in 2008/9 because it had to step in to compensate more than 4 million depositors of six financial institutions, which defaulted that year.[3] It borrowed from the government which receives interest payments for this loan.

However financial services remain a strong contributor to the UK economy. They account for more than 10% of the Gross Added Value in the UK, and 9% in Scotland.

It is clear therefore that the aim of the UK government is to reduce the likelihood of further financial crisis as well as the cost for the public purse in the event of a crisis and, at the same time, to retain the UK status as a global financial centre. To this end an Independent Commission on Banking (henceforth ICB), chaired by sir John Vickers, was appointed in June 2010 and its final report released in September 2011 outlines a series of recommendations with the aim of

1. Making banks able to absorb losses better
2. Making it easier and less costly to sort out banks that still get into trouble
3. Curbing incentives for excessive risk taking

The HM Treasury estimates that by implementing the ICB recommendations, the requirements to increased capital could be met by increasing by 5 per cent the overall equity capital within the industry. Arguments have been made that these new capital restrictions, in that they surpass international requirements, might contribute to reduce competitiveness for the UK banking sector. Others have called for a stricter regulation to increase stability. In this regard, the aim of this research is to analyse whether

alterations in levels of the capital requirements in the ICB recommendations will have a substantial effect on the UK economy, furthermore how different levels of capital requirements might impact the stability of the banking sector.

Data and methodology

In the present work we use Cost Benefit Analysis to account for the impact on the UK economy of the proposed reform and of alternative policies including higher and lower capital requirements. We use data from the ICB (2011) final report, HM Treasury (2012a) white paper, and the draft of the banking reform bill (HM Treasury, 2012b), as well as the balance sheet of the major UK banks accounting for as much as 50% of the total assets of the industry.

The analysis includes prices and costs of private character, as well as a predicted cost of externalities. In the case of prices on externalities, these may be difficult to quantify since there exists no obvious market for them. When this is the case, we have to rely on "surrogates" prices, and use the society's marginal willingness to pay for these goods (shadow prices). In reference to the present value calculations, the costs and benefits have been assumed to continue for the timeframe of 30 years, discounted according to the HM Treasury's Green Book guidance with the discount rate of 3,5%(HM Treasury, 2003).

Measuring private cost for the banks

The HM Treasury (2012b) draft of the banking reform bill has estimated **the total private costs** to UK banks to be in the range of £2 – 5 billion annually, and with a **one-off cost of transition** between £1.5 and £2.5 billion. Implementing these requirements will lead to a higher private cost to banks in the UK.[4] The estimated cost to UK banks is the sum of several effects. A portion of this cost is due to the restriction of the implicit government guarantee for banks which are "too big to fail"

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The HM Treasury (2012b) highlights how the proposed reform is assumed to curb the perceived government guarantee by ring-fencing the activities vital for the economy, and making resolution easier in the event of insolvency.[5] However, banks benefit from the scale in which investors assume and trust that the government will not to let a large bank fail. This reduces their cost of funding as investors assume the extent of loss is smaller than if they were to assume no implicit government guarantee. Theoretical evidence estimates the value of this guarantee to be in the range of £6-100 billion for UK banks (Noss and Sowerbutts, 2012). Therefore, as this implicit guarantee is reduced, banks funding costs are likely to increase as risk is transferred from the government and taxpayers back on to the investors.

Implementing ring-fence is assumed to increase costs of operation and to have transition costs. There may be a benefits-loss of diversification in the long run, as bank's ability to subsidise and distribute across borders of structural separation is restricted.   Furthermore, they are likely to be faced with upfront transitional costs such as forming new subsidiaries, and continuing operational costs of servicing two bodies rather than one (operating accounting platforms, for example). **Total cost of ring fencing** are estimated "to be in the range £1.7bn – £4.4bn per year with one-off transitional costs in the range £1.5bn – £2.5bn"(HM Treasury, 2012b, p.68). The estimation of the permanent increase of bank's costs is obtained by adding up evaluating capital, funding, and operational costs.

Based on simulations from banks, the HM Treasury (2012b) has estimated annual **operational costs** for major UK banks of an ICB implementation in the range of £100 – £300 million per bank, totalling £400 – £1200 million for the industry. However, it has been assumed that these costs will not incur until two years have passed after implementation. This assumption will also be used in the present work.

Capital cost for ring fencing is estimated in the range of £1500-£3000 million per year and is the single most relevant private cost for the banking industry. The modelling of capital requirement increase in the HM Treasury (2012b) assessment is done through wide-ranging scenario estimations from large UK banks. On the basis of these scenario adaptions, the HM Treasury (2012b) estimated the extent of additional capital needed within the sector. Applying this to estimations for the yearly capital and funding costs, based on historical data and the evidence supplied by the UK banks, they were able to estimate annual capital and funding costs of ICB implementation. In this assessment their estimates for transitional costs, operational costs and funding costs will be used and calculated into net present value terms. The estimates for cost of equity will be based on current levels of equity from aggregated estimated balance sheets published in June 2012 in the Financial Stability Report (Bank of England, 2012). It emerges from the balance sheets that the total value of assets and liabilities of these banks amounts to £7600 billion, where equity is estimated to count for approximately 5 per cent of total liabilities. The HM Treasury has assessed the needed increase for equity capital in the industry to be roughly £19 billion, which amount to 5 per cent, with the BoE balance sheet estimates. The cost of equity capital is valued to a high and low cost of roughly 16 and 8 per cent with a long –run historical average cost of equity to banks of 11.5 per cent (Bank of England, 2012).

Funding costs are estimated to be almost negligible or even negative, with an estimation between –£200 and +£200 million. In fact, expectations are that funding costs for ring-fenced banks would fall with the reform, while, funding costs would increase for non-ring-fenced banks.

Operational costs are due to restructuring to comply with the new regulation and it may vary from bank to bank, depending on their business structure. The HM Treasury has assumed the cost to vary from £50-500 million per bank, and on aggregate this has been estimate in the range of £400-£1.200 million per year.

Finally the bill proposes to give preference to FSCS-insured deposits in the event of insolvency. Therefore this will increase the risk for other senior creditors that in turn will demand a higher risk premium for their funds. The HM Treasury (2012b) estimate the annual cost for the financial sector of **depositor preference cost** in the range 300-700 million per year. The following table summarizes the private cost hypothesis outlined in HM Treasury (2012b).

Table 1. Private costs estimated in HM Treasury (2012b) in £million.

	Min	*Max*	*Ave*
Capital costs	*1500*	*3000*	*2250*
operational costs	*400*	*1200*	*800*
funding costs	*-200*	*200*	*0*
Total ring fencing costs	*1700*	*4400*	*3050*
Depositors preference costs	*300*	*700*	*500*
Total annual private costs	*2000*	*5100*	*3550*
one-off transitional costs	*1500*	*2500*	*2000*

Measuring the external effect of changes in regulation

The increased private costs to banks are transferred over to the investors, employees and customers through reduced returns, lower pay and increased prices. The effect on consumption, investment and GDP is thus dependent on how these increased costs feed through.

Having estimated the costs to private UK banks, the HM Treasury (2012b) projects the impact of these costs on UK GDP by applying the FSA methodology.[6]

The HM Treasury (2012b) estimated that the increase in banks private costs produce a **gross reduction in GDP** of £400-£1120 million per year. In the impact assessment developed in the present paper we measure the ratio between the change in GDP and the private cost estimated by the HM Treasury (2012b) and assume that it increases with some measure of private cost. The ratio relative to the proposed reform in the draft bill is 0.20, meaning that the private cost to the banking system is larger than the overall social cost; this can be explained by the fact that some of the private costs are simply transfers between consumers (and other economic agents) and banks. This is the main reason why the total cost for society is lower than the private cost to banks. However, when the private cost increases we assume that the possibility of offsetting such costs is reduced and the ratio increases.

It is also interesting to evaluate the effect of the reform on public finance. In the draft of the banking reform bill, HM Treasury estimates that **tax revenues** will suffer a reduction in the range of £150m-£400m per annum.[7] This results from the application of the long-run tax-to-GDP ratio, which for the UK has been 35.2 per cent over the last 20 years. A further cost of the reform will arise from the impact on the **value of government's shares** in RBS and Lloyds, which is estimated in the range of £2-£5bn.[8]

Obviously the government strongly believes that the reform will have **large benefits** for the society. The HM Treasury (2012) has in fact estimated that the implementation of the recommendations set out by the ICB may lead to an annually increase in GDP of £2000 – £9500 million. In the draft of the banking reform bill (HM Treasury, 2012b) the average benefit of introducing the provisions included in the bill are estimate in 0.47 per cent of UK GDP, which in 2010/11 terms amounts to £6900 million.[9]

The modelling of these benefits is based on assumptions about the effect of the reform on the probability and cost of future financial crises. The Basel Committee on Banking Supervision (BCBS) compared academic research and collected historic estimates for costs to GDP and the probability of previous financial crises. The present value cost estimates to GDP in the occurrence of a crisis hits values ranging from 16 per cent to 302 per cent of GDP (HM Treasury, 2012) with an average of 63% of GDP. The range is very large due to the presence of permanent and non-permanent effects, and to the difficulty of quantifying rare events of large impact. The probability for a crisis to occur in any given year ranges from 3.5 per cent to 5.2 per cent with an average of 4.5% as computed by ICB (2011). Subsequently, the costs

to the UK economy of a financial crisis are substantial, around 3 per cent of GDP or £40000 million in terms of 2010 GDP (HM Treasury, 2012). The benefit of regulation arises from a reduction in the likelihood and/or magnitude of financial crises. Using ICB (2011) estimation, HM Treasury (2012) quantifies the effect of introducing the new banking regulation. It first of all recognizes the positive effect of reforms already in place, which are likely to have reduced the probability of other financial crisis by 30 per cent, while the measures proposed in the bill are supposed to reduce the probability of the crises by a further 10% and the cost of such an event by 15 per cent. Under such assumptions the benefit of the bill in terms of reduced expected cost of further crisis is estimated to be around £6580m per year.[10]

Data quality

The majority of data is accumulated from the Bank of England, the HM Treasury and the Independent Commission on Banking. The data are estimated based on 2010/11 GDP while the base year for the net present value computation is 2019, when the provisions of the bill will be fully implemented. The estimates count for the major banks in the UK including Banco Santander, Bank of Ireland, Barclays, Co-operative Banking Group, HSBC, Lloyds Banking Group(LBG), National Australian Bank, Nationwide, Royal Bank of Scotland (RBS), and Virgin Money (BoE June report 2012). The major banks amount to approximately 50 per cent of the total industry. This might not give a full representation of the UK industry, but should represent the major implications of costs and benefits the industry are likely to face when the new regulation is implemented. Furthermore, the requirements proposed by the ICB differentiates between ring-fenced and non-ring fenced institutions in reference to capital requirements. As this analysis is estimated on aggregated data for major UK banks, this distinction has not been done.

The Impact Assessment

In the present work the costs and benefits of implementing ICB policy recommendations are estimated using different levels of capital requirements. The assessment will examine the impact of the ICB suggestions on loss-absorbency, structural separation and competitiveness with a main emphasis on capital requirements. The HM Treasury has calculated that, in order to comply with ICB policy suggestion, the banking industry as a whole has to increase the equity capital by 5 per cent. In the present paper we will also consider alternative policy options with a stricter and looser version of these capital requirements, of respectively 20 and 1 per cent increase in equity capital and to compare them in terms of efficiency. We therefore compare the following alternative options:

1. Do not implement recommended regulation alternative proposed by the ICB;
2. Implement the recommended regulations included in the draft bill published by the Government which implements key elements of the ICB recommendations and include a 5 per cent increase in Tier 1 Equity Capital;
3. Implement the recommended alternative proposed by the ICB, however with loser capital requirements defined as a 1 per cent increase in Tier 1 Equity Capital;
4. Implement the recommended regulation alternative proposed by the ICB, however with stricter capital requirements defined as a 20 per cent increase in Tier 1 Equity Capital;

In what follows a Cost-Benefit Analysis in terms of social surplus or GDP is developed. The first policy option has zero costs and zero benefits, thus does not contribute to any changes in the regulatory environment and has no effects on the overall economy. This is the baseline for comparison of the alternative policies analysed below.

Effects on the industry

The differences in costs to banks for the policy options derive only from the different costs of equity capital associated with different levels of equity. The costs associated with transition, operation, funding and the restraint of the implicit government guarantee are assumed constant and independent of differences in capital requirements.

Martinez-Miera (2009) estimated the role capital requirements have on the probability of failure for individual banks. His analysis suggested that there does exist a clear relationship in this, however, the relationship is stronger when banks are poorly capitalised. Their analysis also showed some trends of increased risk of failure to banks when requirements are substantially high (by higher than the 20 per cent analysed in this work).

In Table 2 we provide a lower bound, an upper bound, and the average estimated effect of the different policy option on the annual private cost for the firms. In addition to those cost there is a one-off transitional cost estimated by HM Treasury (2012b) in the rage of £1500m - £2500m.

An implementation of increased capital ratios for the banking sector indicates an increased level of leverage ratios in the overall industry. The current level of the leverage ratio is 3.3 per cent, estimated from core capital to tangible assets, and the Tier 1 Capital Ratio is 8.3 per cent. Increasing the equity level in banks with 5 per cent induces a growth in the Tier 1 Capital Ratio of 0.42 per cent to 8.72 per cent and an

improved leverage ratio of 3.5 per cent. Using loser capital requirements has a minor effect on both, improving the Tier 1 Capital Ratio with 0.08 per cent and the leverage ratio with 0.03 per cent. However, tightening the capital requirements result in a boost to the Tier 1 Capital Ratio of 1.66 per cent and an increase in the leverage ratio of 0.63 per cent. Analyzing this in the light of Martinez-Miera (2009) suggests that capital requirements actually could be increased even further without increasing the risk of failure to individual banks substantially.

Table 2: Private annual cost comparison of the different policy options.

	option 2			option 3			option 4		
	Min	*Max*	*Ave*	*Min*	*Max*	*Ave*	*Min*	*Max*	*Ave*
Capital costs	*1520*	*3040*	*2280*	*304*	*608*	*456*	*6080*	*12160*	*9120*
operational costs	*400*	*1200*	*800*	*400*	*1200*	*800*	*400*	*1200*	*800*
funding costs	*-200*	*200*	*0*	*-200*	*200*	*0*	*-200*	*200*	*0*
Total ring fencing costs	*1720*	*4440*	*3080*	*504*	*2008*	*1256*	*6280*	*13560*	*9920*
Depositors preference costs	*300*	*700*	*500*	*300*	*700*	*500*	*300*	*700*	*500*
Total annual private costs	*2020*	*5140*	*3580*	*804*	*2708*	*1756*	*6580*	*14260*	*10420*

An illustrative calculation suggests that banks have substantial capacity to raise additional equity capital. If banks could get an average return on equity (ROE) of approximately 10 per cent, and distributed 70 per cent of this to shareholders, the bank would be able to grow their equity capital at a rate of 3 per cent per annum, not taking increased taxation costs into account. Furthermore, over a period of 5 years this should raise approximately an additional equity of 15 per cent. However, if they were to reduce the amount of dividends paid out on ROE, banks could raise even more new Equity through retained earnings. (HM Treasury, 2012).

It would seem that the most implicit argumentation for this new regulation is to deal with the problems of moral hazard within the industry. One of the greater critics of new regulation has been in reference to how this might affect the lending channel in the economy. Concern has been raised in regards to whether and how the increased costs of capital to banks might reduce banks issuance of lending to the overall economy. There is little doubt in the increase of private costs related to this regulation.

New policy recommendations seem focused on behavioural and incentive driven effects of the regulation. Parts of the sought effect of new policies are to curb banks and managers incentives to be more concerned with the risk of potential investments and not just the high return of the investment. The cost associated with restricting the implicit government guarantee, it is argued, is a cost that has been avoided from the banks side. Research including the Financial Stability Commission's (FSC) and of the BoE show that the increased costs that would transpire with restraining the implicit government guarantee, are costs that have always been there, but have been minimised in that risk has been borne by others rather than the banks themselves, implicitly making funding and capital cheaper.

Admati et al (2010a) has challenged the benefits associated with debt versus equity financing, exploring the link between taxation benefits for debt financing through reduced tax-receipt payments. Banks pay out lower tax when the level of equity is small, increasing debt as means of finance at the expense of equity actually increases their return on equity. Banks as other business are concerned with their return on equity as this often encourages new investors. Making debt financing a "cheaper" alternative for banks, might feed through to their incentive for additional risk taking in that brokers and managers often earn a lot when their trades show good results, however, losses associated with their transaction are usually limited. Due to the asymmetry in the nature of their return, there is an incentive to take riskier positions to increase own compensation (French, et al., 2010). Such bias to select an excessively risky strategy, with a payment obligation that is independent of the bank's asset returns, creates incentives for the bank's shareholders, or for its managers, to take on increased risks (Admati, et al., 2010). Therefore, by reducing (if not removing) the implicit government guarantee and restricting balance sheets by increasing equity to debt financing would limit the incentives to excessive risky strategies.

Effects on the overall economy

The implementation of the ICB recommendations is aimed at the creation of a more stable banking industry, thus limiting negative spill-over effects. However, it is important that banks building of resilience should not come at the expense of the real economy. The argument that the key benefit of the policy implementation is greater financial stability, which in turn would contribute to a higher level of expected

and average GDP in the future, indicates a large payoff of avoiding financial crises. Financial crises, as resent times have shown, are very costly to the overall economy. As a consequence, the benefit of financial stability should be high.

GDP costs associated with the implementation of new regulation are spill-over effects from the increased private costs projected to banks. However, these costs are assumed to be lessened through the spill-over process, and are generally smaller than the private costs. In Table 3 we provide the estimation of annual cost in terms of GDP of the different policy options under scrutiny. We make the assumption that the spill-over increases as the private cost increases, that is, the larger the cost for banks, the larger is the negative effect on social surplus, as a larger part of the private cost is not offset in the economy.[11]

Table 3: Estimation on the annual effect on GDP of the total annual private cost presented in Table 2.

reform	option 2			option 3			option 4		
spill-over on GDP:	20.00%			15.20%			95.00%		
	Min	*Max*	*Ave*	*Min*	*Max*	*Ave*	*Min*	*Max*	*Ave*
total annual social cost	404	1028	716	122	412	267	6251	13547	9899

Implementation of new regulation is expected to accumulate a loss to GDP, as cost are assumed to be transferred through the channels going from the banks and over to the overall economy. The short-term risks to the economy of these implementations are that banks could respond to new regulations by shrinking their balance sheets and cutting back on lending to the economy. This would transfer loss to investment and consumption values in the economy, which could induce effects on employment levels and inflation.

Passing on costs to customers can happen through increased interest margins or stricter lending criteria. Increasing interest rates or tightening lending will feed over to the economy through reduced spending by businesses and households. This may, in the short run, reduce consumption and investment spending. Furthermore, effects could be increased if the implementation of new regulation and the transfer of the increased private costs to banks would incline a reduction in asset prices used as collateral for bank lending.

Although new requirements do induce increased costs to banks, growing capital can increase their capacity and ability to lend as well. Furthermore, if this capital is used to build bigger "loss absorbency cushions" it may also reduce funding costs when increased levels of capital are obtained, as the relationship between capital and lending are closely linked.

The overall effect on the economy will also be influenced by the behavioural response of customers. If there is a shift in the credit demand, from classical banking markets to markets of non-bank financial intermediation the effects of the new regulation might be smaller. In this scenario banks have to internalise a larger amount of their increased costs, which could happen through a reduction in cost of employment by a cut in pay or jobs. Furthermore, the main impact would then fall on bank-dependant sectors such as households and SMEs, as the larger corporations might have the opportunity to obtain their funding from other sources. This would likely induce increased weight again on the more vulnerable participants in the economy in which new policy is estimated to protect, however through another channel than tax-payer funded bail-outs.

A reduction in GDP growth and a downwards pressure on prices and wages would under normal assumptions be expected to lead to a monetary policy response. The effects of the reduction in inflation and GDP growth are likely to be countered by the central bank, with the aim to reduce these effects of the implemented policy.

Tightening the capital requirements above international regulation recommendations, e.g. Basel III, has been one of the major issues of banks. Their argument goes, that increasing requirements above international standards is likely to reduce banks competitiveness against international counterparts. In the long-run, however, by making banks more stable and curtailing the perceived implicit government guarantee, implementing the ICB recommendations is expected to support a more sufficient supply of credit to the economy. To mitigate initial challenges banks are permitted an extended time period to comply with the regulations, starting in 2019.

On the other side, the new policy is implemented in order to reduce the likelihood and the size of future financial crisis. As already mentioned above, the expected costs to the UK economy of a financial crisis have been estimated in the order of magnitude of £40000 million in terms of 2010 GDP. The benefit of the regulation arises from a reduction in the likelihood and/or magnitude of the financial crises. Given that

reforms already in place are likely to have reduced the probability of other financial crisis by 30 per cent, HM Treasury (2012b) estimated that the proposed bill is likely to reduce the probability of the crises by a further 10% and the cost of such an occurrence by 15 per cent. We keep the latter estimation constant for all the policy options as it is more likely to be linked to the ring-fencing strategy, rather than to the magnitude of capital requirements. On the contrary, we assume that the capital requirements linearly affect the probability of a crisis. Under such assumptions the annual benefit of option 2 (the bill) is estimated to be £6580m on average, while the benefit of option 3 is £4676m and £13720m for option 4.

Table 4: Estimated annual benefit of the different policy options.

	option 2	option 3	option 4
annual expected cost of a financial crisis (£m)	40000	40000	40000
annual expected cost of a financial crisis after policies already implemented (£m)	28000	28000	28000
estimated reduction in probability of crises	10.00%	2.00%	40.00%
estimated reduction in cost of crises	15.00%	15.00%	15.00%
estimated benefit of the reform	6580	4676	13720

Now we have all the data needed to compute the net present value of the different policy options. Table 5 summarizes the results under the assumptions of 3.5 discount rate and 30-year time horizon which have been used in HM Treasury (2012).

Table 5: Present value of social benefits and costs associated with the different policy option presented.

	estimated benefit	estimated cost	**net estimated benefit**
option 2	125255	15630	**109626**
option 3	89011	7081	**81930**
option 4	261171	190435	**70736**

The policy option proposed in the bill has the highest net estimated benefit. However this result is very sensitive to the assumptions made on spill-over costs on GDP and on the reduction of the likelihood of the crises. In fact, with assumptions very much in line with those of HM Treasury (2012b) and ICB (2011), it is likely that policy alternative with a larger capital requirement may have higher present value benefit than the one included in the proposed bill. Furthermore, it could be assumed that the size of the private costs that feed over to the GDP, thus the overall economy were larger. Estimations would suggest that doubling this effect still produces a positive result of policy implementation for all levels of increased equity.

One should however not forget the main limitation of the analysis presented here. There might be, in fact, cost effects associated with different levels of requirements which is not measured here since behavioural responses in this are not accounted for. Furthermore, it does not include any potential accumulated market effects which may occur in the wake of implementation of financial regulation. The analysis considers that the amounts of capital needed to meet new regulation are available to banks in the market. Finally, all costs and benefits are estimates of aggregated values. Since the model is static, this does not necessarily converse accurately to reality.

Conclusions

The results of the impact assessment suggest a positive impact of new regulation, should it be implemented. There have been arguments made for both stricter and looser capital requirements of new regulation. The arguments for stricter requirements are based on increasing stability even further and curbing risk incentives. Through a diminished level of risk in the institutions, it has been assumed that bank managers and shareholders are more concerned with the riskiness of their investments and lending if more of their funding is based on equity, and the institutions themselves has to bear losses in the occurrence of a bad investment. The argument for looser capital restrictions is based on that implementation of high capital restrictions, above international level, might infer higher costs which can induce a reduction in lending and competitiveness to the UK banking industry.

From a social point of view the benefits of implementing these capital requirements are estimated to be much larger in comparison to the associated costs and this result still holds when considering policy options with both smaller and larger capital requirements.

Barrel et al.(2010) investigated the role of capital and liquidity standards in the sub-prime crises, and claim that if capital standards had been roughly 4 percentage points of total assets higher, over the last 15 years, the sub-prime crises might well have been avoided. The impact assessment developed in the present work is based on the intuition that larger capital requirements reduce the probability of crises.

One thing to be noted is that the current levels of the leverage ratio in the aggregated values of the industry is in 2011 estimates, are equal to or slightly above the recommended level of the leverage ratio proposed by the new regulatory requirements. Since these numbers is an overall estimate, it is noted that this does not necessarily indicate sufficient levels of Tier 1 Capital within each bank. The Bank of England estimated in their Financial Stability Report published in June, that recent changes in leverage were mainly due to a reduction in risk-weighted assets, and not an increase in equity capital (Bank of England, 2012). Although, a reduction in risk-weighted assets may contribute to a more stable financial system, increased equity capital should contribute to this as well as maintaining the vital services of the system in which the economy depends. The increase in the leverage ratio, thus the reduction of leverage in the sector as a whole, should indicate an increased level of stability within the sector. This is due to that institutions with these increased levels of equity should be better able to absorb losses, give the institutions desired rating by agencies which able the banks to maintain their activities. The average current level of Core Tier 1 Equity Capital seems to be in lines with the regulatory suggestions. However, as this analysis take count for the aggregated results, levels for individual institutions might differ. Increasing capital requirements has substantial effects on banks private costs, however, these costs also depend on the cost of capital in the market.

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[1] The data are gathered from the Office of National Statistics, Business Register and Employment Survey (BRES) 2008 and 2011.

[2] This information are provided by the UK Financial Investments Ltd annual report and accounts 2011/12 presented to the house of Commons on 3 July 2012

[3] Five banks (Bradford & Bingley, Kaupthing Singer & Friedlander, Heritable Bank, Landsbanki Islands, London Scottish Bank) and one building society (Dunfermline Building Society defaulted in 2008/9.

[4] In the assessment supporting the white paper the figure were different, with an implementation cost for the banks of £2,500m and an annual cost of £4000m - £7000m per annum. So, both the transitional cost, and the annual cost has been adjusted downward in the latest HM Treasury estimates.

[5] There have already been made some actions to restrict this perceived guarantee. The Special Resolution Regime has implicitly signalled to the sector that they cannot again expect benefits from bail-outs funded by tax payers to the same extent as before.

[6] The FSA uses the NiGEM model, which is an empirically based model that can be used to assess the impact of changes to banks minimum capital ratios, funding and operating costs on capital prices and economic output. The model utilises long-term historical data to determine impacts on the overall economy of changes to banks costs. The NiGEM model estimates costs to GDP on the basis that banks pass on a high level of increased cost to the overall economy. If this notion is made this would imply that the actual costs affecting the bank's balance sheets and profits are smaller than what initially would be estimated as the direct costs to the industry (HM Treasury, 2012). It is recognised that using historical evidence may not give a true reflection of future trends; this would suggest that the actual spill-over effects might deviate from the estimate assumed in this paper.

[7] The previous estimate published in HM Treasury (2012) was of a gross reduction in tax receipts of £200-500 million annually.

[8] As for previous cases this estimation is less pessimistic than the one in HM Treasury (2012) which was £6-£9 billion.

[9] All the changes from the white paper estimations (HM Treasury, 2012) published in June and the draft of the reform bill (HM Treasury 2012b) published in October are in the direction of lower costs and higher benefits.

[10] This number comes from a direct application of the assumptions put forward in HM Treasury (2012b). However, in the text these are reported to be slightly higher (£6900m) but we have not been able to replicate this exact number. We rely on our computation for consistency with other estimates.

[11] We use the following spill-over function $a + b\,CR^4$ where CR is the increase in capital requirement as a fraction of total liabilities of the banks, and a and b are calibrated so to fit the HM treasury estimations for policy option 1.