



International Centre for
Financial Regulation

ICFR Discussion Paper

What is the price of Basel III? A guide to the impact (and the impact studies) of Basel III on the real economy

Written by Stefano Pagliari

October 2011

Contents

Executive Summary.....	3
1. Introduction	4
3. From Private to Social Costs: Adjustment Strategies and their Determinants.....	11
4. Regional Coverage	14
5. Assessing the benefits of Basel III	16
6. Conclusion	20
Works Cited in the Text.....	22

Deleted:

Executive Summary

The Basel III agreement represents the linchpin of the attempt to reconstruct the banking system on more solid foundations after the global financial crisis. But what is the toll that the implementation of this agreement will take on the real economy?

A number of studies prepared by public officials and private sector organizations have in recent months undertaken cost-benefit analyses of the impact that implementing Basel III will have on GDP levels and growth. However, when we look at the results of these studies, the wide gaps that exist between some of the results are striking. While most estimates provided by the authorities that comprise the Basel Committee have concluded that implementing Basel III would pose only modest costs on the real economy, studies coming from the private sector have estimated costs as much as eight times higher.

This study will attempt to shed light on the gaps existing in the outputs of the different studies that have sought to quantify the impact of Basel III by illustrating how these are sensitive to four key sets of assumptions underlying these results:

1. *Different assumptions regarding how much capital individual banks will need to raise to implement the new regulatory regime.* This work will highlight how the estimates of the costs for individual banks vary significantly depending on the different elements of the new international regulatory architecture that are included in the models.
2. *Different assumptions regarding how financial institutions will react to the new requirements.* These assumptions influence significantly to what extent the costs are internalized by banks or passed to the economy. This work will analyse the treatment of three factors that may influence these mitigation strategies: timeline of implementation, market reaction, and monetary policy. It will also highlight how these are treated differently in different models.
3. *Variations in their regional coverage.* This work will explore the distributive impact of the agreement and highlight how the costs of implementing Basel III will be unevenly distributed not only among industrialized economies, but also between industrialized and emerging economies.
4. *Different assumptions regarding the benefits brought by Basel III.* Some of the studies have gone beyond simply providing an estimate of the costs of implementing Basel III, and have weighted them against the benefits brought by the agreement. This paper will discuss how also the estimated benefits of implementing Basel III are also highly dependent on their assumptions.

Indeed, the sensitivity of the results of these studies to several key assumptions suggests that a note of caution is necessary regarding their interpretation. Not only the real costs imposed by the implementation of Basel III may significantly deviate from those predicted by these studies, but they will be distributed in a highly asymmetric way across countries as well as across different domestic actors within the same country. Moreover, the difference in how the costs and benefits will be distributed across different actors and the time horizon in which they will materialize is likely to have a significant impact over the on-going political struggle surrounding the implementation of Basel III. To conclude, this analysis serves as a reminder that impact assessment studies are frequently more than simply attempts to take a snapshot of the costs that the regulation will impose in the future, but may also be used by vested interests as tools in this struggle. Acknowledging the sensitivities to the methodological assumptions, as this study has attempted to do, is an essential component of

building a more transparent and informed debate about the costs and benefits that regulation will create across societies.

1. Introduction

The Basel III agreement represents the linchpin of the attempt to reconstruct the banking system on more solid foundations after the global financial crisis. This goal is being pursued by demanding banking institutions to retain more and better quality capital, as well as by introducing new provisions such as liquidity requirements and a leverage ratio. But what is the price?

Long before the final word has been put on the final text of the agreement, a vibrant dispute has emerged regarding the costs that the regulatory requirements associated with Basel III will pose on future economic growth. As the Basel III agreement is about to face its first anniversary, the relevance of this issue in the policy sphere has grown rather than faded. In particular, the worsening of the Eurozone debt crisis and the spectre of a prolonged recession in many countries have decreased the support for regulatory measures that could further affect the pace of economic recovery.

Different studies prepared by public officials and private sector organizations have in recent months undertaken cost-benefit analyses of the impact of implementing Basel III on GDP levels and growth. However, when we look at the results of these studies, the wide gaps that exist between some of these results is striking.

At one end of the spectrum are the estimates of the costs posed by Basel III provided by the official sector. In particular, the Macroeconomic Assessment Group (MAG), established by the Basel Committee to assess the transitional costs in meeting the additional capital and liquidity requirements, concluded that bringing the capital ratio to a level that would meet the agreed minimum in the Basel III accord would have a “relatively modest impact on growth”¹, with a maximum decline in GDP relative to baseline forecasts of 0.22% in the 35th quarter after the start of implementation, followed by a recovery of growth towards baseline. A more recent analysis by the MAG combined these results with the increased capital requirements being proposed for global systemically important banks, concluding that all components of the Basel III agreement would only reduce growth by a minor 0.34% during the eight-year period in which the rules were being implemented.² In August 2010, the Basel Committee also published an assessment of the long-term economic impact (LEI) of Basel III once all the regulatory measures have been implemented at the end of the transition period.³ This study concluded that each percentage point increase in the capital ratio caused a 0.09% decline in the level of output relative to the baseline. Combining these different studies, the MAG concluded that after the end of the implementation period GDP would remain about 0.30% below where it would have been without these regulatory measures. Officials comprising the Basel Committee concluded that this price would be significantly outweighed by the permanent annual benefits of reducing the frequency and severity of banking crises brought by the new regulatory framework, measured as up to 2.5 per cent of GDP.⁴ The position expressed by regulatory authorities comprising the Basel Committee is that “a capital regime materially stronger than ones seen in the recent past is likely to exert a beneficial impact on the macroeconomy that should more than offset the transitional costs of the adjustments that banks need to make to put the regime into practice”.⁵ These findings have been supported by similar estimates of the costs of

¹ MAG (2010)

² MAG (2011) p.22

³ BCBS (2010)

⁴ MAG (2011) p.2

⁵ MAG (2010) p.3

implementing Basel III found in studies conducted by the OECD⁶ and by the International Monetary Fund.⁷

Table 1
Expected long-run annual benefits and costs of tighter regulatory standards
 (benefits and costs are measured by percentage impact on the level of output per year)

Capital ratio	Expected costs	Expected benefits (moderate permanent effect)	Net benefits (moderate permanent effect)	Net benefits (no permanent effect)	Net benefits (large permanent effect)
Liquidity requirement not met					
7%	0.00	0.00	0.00	0.00	0.00
8%	0.09	0.96	0.87	0.20	2.32
9%	0.18	1.62	1.44	0.31	3.87
10%	0.27	1.98	1.71	0.33	4.70
11%	0.36	2.23	1.87	0.31	5.23
12%	0.45	2.39	1.94	0.27	5.54
13%	0.54	2.50	1.96	0.21	5.73
14%	0.63	2.58	1.95	0.15	5.84
15%	0.72	2.64	1.92	0.08	5.90
Liquidity requirement met					
7%	0.08	0.76	0.68	0.15	1.83
8%	0.17	1.40	1.23	0.25	3.33
9%	0.26	1.82	1.56	0.29	4.30
10%	0.35	2.10	1.75	0.28	4.91
11%	0.44	2.29	1.85	0.25	5.30
12%	0.53	2.42	1.89	0.20	5.55
13%	0.62	2.52	1.90	0.14	5.70
14%	0.71	2.60	1.89	0.07	5.80
15%	0.80	2.65	1.85	0.00	5.85

Source: BCBS Aug 2010 p.29

These conclusions have, however, been challenged by the Institute for International Finance (IIF) - an international association representing some of the world's major financial institutions - which stated that the cumulative impact of implementing Basel III would have been about eight times higher than calculated by the Basel Committee. The final report was presented in September 2011, when the IIF estimated that as a result of implementing Basel III the level of real GDP would be in five years time about 3.2% lower than otherwise. According to the IIF this would cost 7.5 million jobs in 5 years.⁸ How can we make sense of the wide gap that exists between the estimated costs of implementing Basel III presented by the different studies?

A full and direct comparison between these studies is often hindered by their different and only partially explicit modelling approaches. Instead, this study will attempt to shed light over some of

⁶ The study on the "Macroeconomic Impact of Basel III" presented by two members of the OECD Economics Department in February 2011 concluded that "the estimated medium-term impact of Basel III implementation on GDP growth is in the range of -0.05 to -0.15 percentage point per annum" during a five-year period. More specifically, the authors concluded that "a one percentage point increase in the ratio of bank capital to risk weighted assets would result in an average impact on GDP level of -0.20% five years after the implementation, which translates into a -0.04 percentage point impact on annual GDP growth". Slovik & Cournède (2011) p.844

⁷ Cosimano & Hakura (2011); Roger & Viče (2011)

⁸ IIF (2011); This report followed an interim report published in June 2010, and a discussion paper published in October 2010, see IIF (2010a). The estimates provided in this report were later amended in a second report published in December 2010 - see IIF (2010b)

the differences in the output of these studies by focusing on the ‘inputs’ they select to generate their results.

According to these studies, what are the factors that will determine the costs that the implementation of Basel III will impose upon the economy? The rest of this paper will trace the origin of some of the disagreements between these studies through their differing assumptions by assessing the elements of the regulatory regime implemented (Section 2), the adjustment strategies that will be put in place by banks to meet the regulatory requirements (Section 3), the regional coverage of the analyses (Section 4), and measures of the extent of the benefits from implementing the agreement (Section 5).

2. How much capital is missing? Looking at private costs

The attempt to calculate the costs that implementing the Basel III agreement will have on the economy involves a two-stepped process. The first step requires an evaluation of the total costs accruing to banking institutions. The second step involves assessing how these private costs are transmitted to the rest of the economy, and the impact of the increases in bank capital and liquidity on the level of economic output for the rest of the economy.

This section will focus on the first of these two steps, taking a closer look at some of the assumptions made by the different studies regarding the private costs for individual banks to meet the requirements created by the Basel III agreement. Basel III increases the minimum capital requirement for common equity capital from 2% to 4.5% of risk-weighted assets and the Tier 1 ratio from 4% to 6% effective as of 2015. Moreover, as of 2019, banks will be required to add a conservation buffer of 2.5 percentage points on the top of common equity and Tier 1 capital ratios.

How big is the consequent shortfall in the capital levels of banks? Different studies have offered partially different estimates of this. The MAG’s final report built upon the results of the Quantitative Impact Study conducted by the Basel Committee in 2009, assuming that the current level of common equity ratio was 5.7% of risk-weighted assets. This means that banks would not be required to raise additional capital until 2015, while at this point they would have to raise capital equivalent to 1.3% to meet the conservation buffer.

The IIF has criticized the approach adopted by the MAG to calculate capital shortfalls, arguing that the higher capital ratios represent only one aspect of the capital changes introduced by the Basel III agreement. The IIF study has thus included in its analysis other changes, in particular the redefinition what will be eligible to be counted as Tier 1 capital, as well as changes in risk weighting, such as the greater risk-weights applied to the trading book.

Table 2
Pre-crisis and current levels of bank capital

	Bank Capital (percentages of risk-weighted assets)				Δ Bank Capital (percentage points)
	2006	2007	2008	2009	2006-2009 Increase
United States					
Tier 1	9.8	9.4	9.7	11.4	1.6
Common Equity	8.6	8.3	8.4	10.5	1.9
Euro Area					
Tier 1	8.0	7.7	8.6	9.4	1.4
Common Equity	6.8	6.6	7.3	8.0	1.2
Japan					
Tier 1	5.4	5.6	5.6	6.9	1.5
Common Equity	3.3	3.3	3.3	4.1	0.8
Average (unweighted)					
Tier 1	7.7	7.6	8.0	9.2	1.5
Common Equity	6.2	6.1	6.1	7.5	1.3

Table 3
Remaining increase in bank capital ratios

	Capital Increase Required until 2015 (percentage points)			Capital Increase required until 2019 (percentage points)		
	Required	Achieved	Remaining	Required	Achieved	Remaining
United States						
Tier 1	2.0	1.6	0.4	4.5	1.6	2.9
Common Equity	2.5	1.9	0.6	5.0	1.9	3.1
Euro Area						
Tier 1	2.0	1.4	0.6	4.5	1.4	3.1
Common Equity	2.5	1.2	1.3	5.0	1.2	3.8
Japan						
Tier 1	2.0	1.5	0.5	4.5	1.5	3.0
Common Equity	2.5	0.8	1.7	5.0	0.8	4.2
Average (unweighted)						
Tier 1	2.0	1.5	0.5	4.5	1.5	3.0
Common Equity	2.5	1.3	1.2	5.0	1.3	3.7

Source: Slovik, P. and Cournède, B. 2011, p.6

Moreover, the IIF has also criticized the Basel Committee for having focused primarily on the impact of higher regulatory capital ratios and not having adequately accounted for the implications of the new liquidity requirements. Basel III requires banks to meet two liquidity ratios. The first is a 30-day liquidity coverage ratio (LCR) which would require banks to have sufficient high-quality liquid assets to withstand 30-days of funding stress. The second is the net stable funding ratio (NSFR), which is a longer-term structural ratio designed to incentivise banks to use stable sources of funding. The

shortfall created from the need to meet the long-term funding ratios have been estimated in about €2.3 trillion and €2.2 trillion in the United States.⁹

However, the costs of meeting the new liquidity requirements remain unclear. In fact, the liquidity requirements remain subject to an observation period, and while the LCR will be introduced in 2015, the NSFR will only be introduced in 2018. The Basel Committee announced in September 2011 the launch of an impact study on the liquidity rules in order to assess whether they should be revised. Moreover, the uncertainty regarding the costs of meeting the liquidity requirement is heightened by uncertainties about the nature of the interaction between meeting the capital and liquidity requirements. As the Basel Committee has stated in its report, “Banks’ efforts to meet the capital requirements are likely to reduce the adjustments the banks will need to make to meet the liquidity requirements, and vice versa”¹⁰.

While the changes to the capital and liquidity requirements represent the main pillars of Basel III and have attracted most of the attention in different studies, less well understood are the private costs deriving from the implementation of other pieces of the Basel III Agreement. For instance, none of the studies has considered the implications of the leverage ratio introduced in Basel III, since according to the IIF “the effects of the interplay of the leverage ratio with the liquidity ratios are not yet well understood, but may result in complex compliance problems that will affect banks’ decision-making on business models”¹¹. A study conducted by McKinsey has instead concluded that “the leverage ratio embodied in Basel III will not be a major constraint, adding little or nothing to the requirements imposed by the risk-based ratios”.¹² Also the impact of the counter-cyclical buffers ranging between 0% and 2.5% that will be introduced as part of the macroprudential overlay of the new regime are not accounted for in most existing studies.

More recently, the debate has intensified regarding the impact of another component of the regulatory infrastructure emerging from the crisis, that is, the additional capital requirements for systemically important banks that would be phased in starting from the beginning of 2016, to become fully effective on 1 January 2019. While this additional capital surcharge was not analysed in the initial reports by the official sector, in April 2011 the Basel Committee and the FSB reconvened the MAG to analyse the impact of these measures. According to this study, raising capital requirements on the 30 major global systemically important banks would lead to a modest fall in GDP to a level of 0.06% below its baseline forecast, before recovering.

⁹ McKinsey (2010) p.1

¹⁰ MAG (2010) p.2

¹¹ IIF (2011) p.16

¹² McKinsey (2010) p.5

Table 4
Basel III Minimum Capital Ratios and Phase-in Plans
All dates as of January 1

	2011	2012	2013	2014	2015	2016	2017	2018	2019
1 Minimum Common Equity Capital Ratio	2.0%	2.0%	3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
2 Capital Conservation Buffer						0.625%	1.25%	1.875%	2.5%
3 Total (1+2)	2.0%	2.0%	3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
4 Phase in of deductions from core Tier 1 equity due to capital redefinitions				20%	40%	60%	80%	100%	100%
5 Phase out of instruments that no longer qualify as non-core Tier 1 or Tier 2 capital			10%	20%	30%	40%	50%	60%	70%
Memo:									
Minimum Tier 1 Capital	4%	4%	4.50%	5.50%	6%	6%	6%	6%	6%
Minimum Total Capital	8%	8%	8%	8%	8%	8%	8%	8%	8%

Source: IIF Sep 2011, p.19

But there are several factors which may lead the costs of regulating G-SIB to deviate from these figures. While the MAG has assumed that these 30 global systemically important banks would be required to raise an additional 2 percentage points in their capital ratios over a period of eight years, this represents only an approximation. In fact, the Basel Committee has identified different buckets with capital surcharges ranging from 1% for the lower bucket to 2.5% for the highest depending on the relative systemic importance of each financial institutions. However, how to measure the systemic importance of banks is the subject of an open debate and individual institutions have not yet been publicly assigned to these buckets. Most importantly, the additional capital buffers represent only one piece of the toolkit discussed by the Basel Committee. This includes also a set of recommendations for improvements in domestic and cross-border bank resolution, measures to enhance the intensity and effectiveness of SIFI supervision, measures to “bail in” creditors, and improvements in the market infrastructures. As the MAG has acknowledged, “at present, it is difficult to provide a rigorous quantitative assessment of the costs and benefits of these proposals. Resolution regimes are complex and differ dramatically across countries, formal resolutions of SIFIs have been rare, and both contractual and statutory bail-in instruments are essentially untested. A proper assessment would have to wait until more experience with the proposed tools is gained”.¹³

The uncertainty regarding the amount of capital that will needs to be raised is also heightened by the possible divergence between what agreed internationally and the action of individual banks. For

¹³ MAG (2011) p.20

instance, the impact study conducted by McKinsey assumes that banks will maintain a cushion on top of the regulatory minimum to reach industry target ratios of 9 percent core Tier 1 and 11 percent Tier 1. This voluntary industry cushion would account for 55 percent of the estimated shortfall.

However, the most significant source of deviation in the cost of implementing the agreement from the estimates provided from official and private sector studies may arise from country-specific levies or additional surcharges that may be established by national supervisory authorities. For instance, in the United Kingdom the Independent Commission on Banking has made recommendations for the introduction of a capital surcharge of at least 3% for systemically important financial institutions beyond the ones defined by the Basel Committee, as well as insisted on the use of contingent capital as a significant funding instrument. The European Banking Authority has supported the idea of requiring European banks to raise their core tier one capital ratio to the level of 9%.

In a similar way, others have already committed to introduce some of the requirements included in the Basel III agreement ahead of the schedule set internationally. These measures, which would significantly increase the capital shortfall for individual institutions and therefore also the impact on the economy, are only approximately modelled in most studies.¹⁴

While it is possible that the implementation of Basel III at the domestic level will coincide with a hardening in some countries of the regulatory requirements negotiated by the Basel Committee, experience teaches that the implementation phase at the domestic level is more likely to be associated with changes softening, rather than increasing, the burdens of Basel III. These potential variations remain impossible to model. A first sign of this has come from the approach to the implementation of Basel III put forward by the European Commission in the Capital Requirement Directive IV. Several commentators have described this as leading to a more lenient definition of acceptable capital than the one originally intended by the Basel Committee. Indeed, market participants that have unsuccessfully demanded that some parts of Basel III should be relaxed may find a more favourable audience for their requests during the implementation phase at the domestic level.

To sum up, one of the key sources of divergence between different analyses is the capital shortfall from meeting Basel III. The capital shortfall is highly dependent from the different assumptions regarding what elements of Basel III are incorporated into the models, as well as from elements more difficult to model, in particular the divergences between Basel III and the measures introduced at the national and regional level. Indeed, the significant uncertainty that still surrounds many aspects of the regulatory framework negotiated at the international level, and the different paths followed by policymakers during the implementation phase at the national level, suggests that the costs for individual banks may diverge even more significantly than most impact studies account for.

¹⁴ An important exception in this case is the final report presented by the IIF in September 2011 which has incorporated also numerous measures introduced at the domestic level. For instance, the IIF includes in its study an estimate of the impact on US bank profits will be affected by additional taxes and fees included in the Dodd-Frank bill, as well as restrictions on activities reducing bank profits such as the Volcker Rule. In the case of Europe, the IIF analysis assume the additional costs for the banking industry will be imposed by the securitization rules (in particular the risk retention requirements), national taxes on bank earnings, and the introduction of Solvency II that will make more difficult for insurance firms to fund banks. Also the study conducted by McKinsey has factored in national discretions for Switzerland and the United Kingdom.

3. From Private to Social Costs: Adjustment Strategies and their Determinants

A second source of divergence among different studies concerns their assessment of the extent to which private costs faced by individual banks will be internalized or passed on to the rest of the economy. Much of the disagreement on this issue derives from the different assumptions regarding what adjustment strategies banks will adopt to meet the new regulatory requirements.

The analysis developed by the Basel Committee is based on the assumption that banks will meet the regulatory requirements by raising their lending spreads in order to increase profits. A key implication that derives from this assumption is that any increase in costs of funding experienced by the banks will be fully passed through to the rest of the economy. According to the Basel Committee, the need to lengthen the maturity of wholesale funding and increase holdings of highly rated bonds in order to meet the new liquidity requirements would lead banks to raise lending spreads in order to avoid a fall in their returns on equity.

Table 5
The Impact of Basel III on bank lending spreads

	Remaining Capital Increase (percentage points)		Increase in Bank Lending Spreads (basis points)	
	2015	2019	2015	2019
United States	0.6	3.1	12.3	63.6
Euro Area	1.3	3.8	18.6	54.3
Japan	1.7	4.2	14.3	35.3
Average (unweighted)			15.1	51.1
Average (GDP weighted)			15.6	52.9

Source: Slovik and Cournède, B. 2011, p.8

However, this is not the only adjustment strategy available to financial institutions seeking to adjust to the changes in capital and liquidity requirements, some of which would lower the impact upon the rest of the economy. One possibility would be for banks to generate capital internally by issuing new shares and diluting existing shareholder rights. Alternatively, a working paper prepared by two IMF economists has modelled a scenario in which banks seek to meet the target of Basel III by reducing dividend payments and/or the target rate of return on equity, using all retained profits to build up capital.¹⁵ The IIF in its report also considers the scenario in which banks seek to meet some of the costs associated with the new regulation by cutting other costs such as compensation.

While these adjustment strategies would impose minor costs than the widening of spreads considered by the Basel Committee, banks may choose other adjustment strategies that may be more damaging to the economy. Some studies model scenarios where banks seek to meet the new capital requirements not by building up capital in the numerator of the capital ratio but rather by intervening on the denominator, cutting the overall size of their loan portfolios or shifting the composition of loan portfolios towards less risky assets. The study by the IIF has argued that this

¹⁵ Roger & Vlčič (2011)

mechanism has been the predominant one in the recent period, when across all the major economies there has been an outright reduction in bank assets.¹⁶

Besides influencing the extent to which the costs of meeting Basel III will be internalized or passed to the rest of the economy, different adjustment strategies would also influence the distribution of these social costs. In particular, while adjustment in the ROE targeted by individual banks or in their dividend policy would primarily hit investors, adjustments in the lending rates or reduction in bank assets would impact more directly borrowers.

It is therefore important to investigate what factors will influence the strategy adopted by banks to meet the new regulatory requirements and therefore the extent to which the cost of regulation is passed to the end user. Indeed, different studies agree on the fact that the timing of the adjustment will be a key determinant of the adjustment strategy.

As the IMF study points out, a speedier adjustment would make it impossible for banks to raise enough capital simply by cutting dividends, and would increase the likelihood that banks would be forced to aggressively shed risky assets and change the composition of the portfolio.¹⁷ Different reports agree on the fact that a longer time period would give banks more time to adjust their business models and cost structures and enable them to undertake less drastic strategies, such as raising capital through retained earnings or equity issuance, rather than simply through increased lending spreads or 'asset-dumping'. A longer implementation would also increase the capacity of markets to absorb the asset sales or the issuance of new debt or equity.

Indeed, while the timeline of the adjustment differs across studies, it remains difficult to determine what timeline remain the more realistic. In fact, despite the Basel Committee has agreed that higher capital requirements may be phased in over a longer time period than initially assumed, some national regulatory authorities have been pushing their banks to meet these standards along an accelerated schedule. The plan to quickly recapitalize European leading banks currently negotiated by European authorities may create strong pressures for some of these institutions to deleverage and divest assets. Moreover, the timing of the adjustment will not be influenced uniquely by regulators but also by market forces. Both the MAG and IIF report argue that one of the circumstances that may amplify the costs of implementing Basel III is the attempt by banks to meet the requirements ahead of the schedule defined by regulators in order to signal to the markets their underlying capital strength. According to the IIF, the likelihood of this scenario has been reinforced by the deteriorating situation in the financial markets, as well as by the European sovereign debt crisis. As a result of these events, the IIF argues, "it is plausible that investors – especially investors in bank capital – will now see the medium-term targets of the BCBS as something that banks will need to adhere to sooner rather than later, and put pressure on bank managers to meet these objectives quickly".¹⁸ The final report presented by the IIF in September 2011 has therefore also included among its different scenarios in which reforms will be implemented a "rapid adjustment scenario" in which banks decide to implement rapidly over the 2011-12 horizon, as well as the higher regulatory requirements scheduled to be adopted later in the decade.¹⁹

Another crucial factor influencing the adjustment strategy adopted by financial institutions is the sensitivity of the markets to different mitigation strategies and their ability to rapidly accommodate the balance sheet adjustments desired by banks. A greater willingness of investors to absorb new

¹⁶ The IIF states that although some of this reflected a reduction in lending between financial institutions rather than a reduction in lending to the rest of the economy.

¹⁷ Roger & Vlčič (2011)

¹⁸ IIF (2010b) p.12

¹⁹ IIF (2011)

issues of bank equity, in addition to that of bank bond investors to provide new long-term debt issues to replace short-term liabilities and fund additional liquid asset holdings, would significantly mitigate the growth implications of meeting the requirements of the Basel III. On the other hand, if the costs at which capital markets are willing to supply credit to banks is too high, banks may prefer to trim assets in order to satisfy the new capital requirements.

Unfortunately, we find that the sensitivity of markets is treated differently in different impact studies. In particular, the IIF has criticized the BCBS for assuming perfectly elastic demand for bank's equity and the capacity of banks to raise significant capital at limited additional marginal cost. On the contrary, the IIF argues that raising capital has been challenging for banks over the past year and that these difficulties may be further reinforced by regulatory changes introduced in the insurance sector which may further restrain the ability of these traditional investors in banks' funding instruments to provide capital to banks. Rather than simply assuming perfectly elastic demand for banks' equity, the IIF runs different scenarios, including one assuming very elastic funding markets similar to the conditions in the market prior to the middle of 2007, and a less benign scenario where funding markets for banks are less elastic.

However, other commentators have pointed out that while higher capital requirements would increase the costs of equity during the adjustment phase, the reaction of the markets may be different in the steady state. In particular, David Miles, member of the Bank of England's Monetary Policy Committee has argued that the logic of the Modigliani Miller theorem suggests that if banks reduce their leverage and switch part of their funding from debt to equity, the volatility of the return on equity would fall and the safety of the debt would rise. These changes would diminish required rate of return on both sources of funds. In a study published by the Bank of England, Miles, Yang, and Marcheggiano concludes "It is absolutely NOT self-evident that requiring banks to use more equity and less debt has to substantially increase their costs of funds and mean that they need to charge substantially more on loans to service the providers of their funds".²⁰ These authors also estimates that also in the case bank doubled their capital, the average cost of funding would only increase by 10-40bps, as banks would still be financing more than 90% of their assets with debt.

A final element influencing the adjustment strategies pursued by banks that is treated differently by the different models is monetary policy. Indeed, a more accommodating monetary policy may be used by central banks to mitigate part of the decline in the output caused by the higher capital requirements as well as to make raising capital cheaper for banks. On the contrary, IMF economists have estimated that in the case in which monetary policy does not respond to the regulatory measures the peak output decline would be around 50 percent higher than with a policy response.²¹ Thus, the treatment of monetary policy represents another important element of difference across the models. On the one hand, the analysis conducted by the BIS allows for this monetary response, whereas the IIF has not incorporated the effects of monetary policy, arguing that "the assumption that there is latitude for a monetary policy response is looking increasingly questionable as policy makers (at least in the US) struggle with deflation"²².

In summary, the adjustment strategy adopted by banks will play a crucial role in determining to what extent the costs of implementing Basel III will be internalized by the same banks or passed to the economy. However, a closer look at the different impact studies reveal how some of the main determinants of this adjustment, factors such as the capacity of markets to absorb significant

²⁰ Miles, Yang and Marcheggiano (2011) p.8

²¹ Roger & Vlčič (2011) p. 20

²² IIF (2010b) p.21

volumes of bank equity issuance or the ability to alter their business strategy and cost structures, are not only treated differently, but often cannot be easily captured by models.²³

4. Regional Coverage

Another major difference across the different impact assessments of Basel III implementation derives from their regional coverage. The most comprehensive study in this regard is the one conducted by the MAG, which is based on 97 different models, covering 17 jurisdictions. These includes not only the major European and North American economies but also a set of large emerging countries, such as China, India, Brazil, and Russia, as well as more recent OECD countries such as Mexico and South Korea. On the contrary, the IIF has initially focused on only three jurisdictions (US, Euro-Area, and Japan), later expanded to 5 with the inclusion of the UK and Switzerland. Indeed, according to the IIF this narrower regional coverage can explain some of the gap in the costs estimated by the two studies. According to the IIF, the inclusion by the MAG of countries where the impact of Basel III would be limited has the effect of lowering the overall estimate of the costs of implementing Basel III.

The impact that the variation in the regional coverage of different studies has on the estimated costs posed by the implementation of Basel III points towards an important characteristic of the agreement: its redistributive nature. Indeed, the different studies that have sought to calculate the costs of implementing Basel III agree on the point that these will be distributed unevenly across countries. The MAG has stated that “All else equal, countries in which the capitalisation of a relatively larger share of the banking system currently falls below the global average are likely to experience a relatively greater economic impact, while the effect will be diminished or absent in countries where bank capital levels are already close to or above the proposed minimum requirements”.²⁴

While the CEO of a prominent international bank has described the agreement as “anti-American” for penalizing US banks more than their European rivals, the distribution of costs among corporate borrowers is likely to be different. In particular, a study conducted by two OECD economists has concluded that the macroeconomic impact of Basel III will be larger in the Euro Area, citing as one of the main causes the greater share of bank credit intermediation.²⁵ As a matter of fact, European corporations continue to rely heavily on bank funding, rather than US companies which rely more on capital market sources. According to a note published by Standard & Poor’s the full implementation of Basel III will raise borrowing costs for companies in the Eurozone between €30 billion and €50 billion, while the costs for companies in the US will only be a fraction of this, ranging from €9 billion to €14 billion.²⁶

Most studies assessing the impact of Basel III on the real economy suggest that the costs of implementing Basel III will be higher in Europe, than in Japan and in the US.

Table 6

²³ MAG (2011) p.20

²⁴ MAG (2010) p. 8

²⁵ Slovik & Cournède (2011) p.844

²⁶ S&P (2011) Source: S&P 2011, p. 11

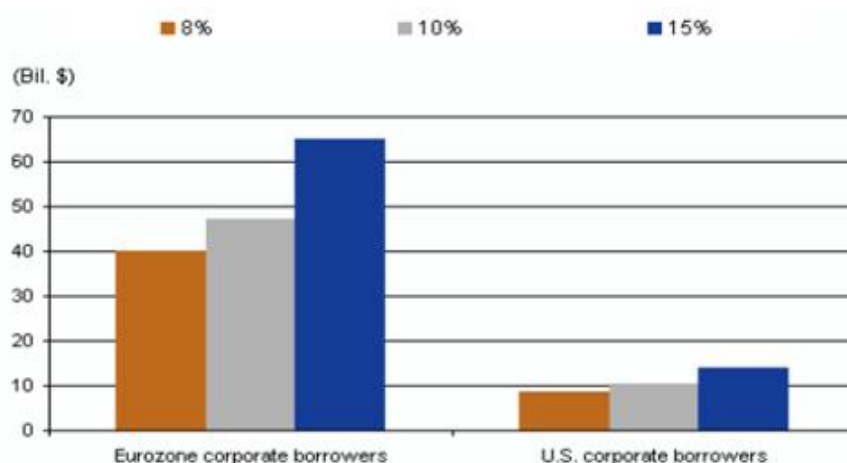
Macroeconomic impact of 2019 Basel III capital requirements

	GDP level (percentages)					GDP Growth (percentage points)
	Year 1	Year 2	Year 3	Year 4	Year 5	annual
United States	-0.05	-0.20	-0.34	-0.49	-0.59	-0.12
Euro Area	0.00	-0.13	-0.51	-0.76	-1.14	-0.23
Japan	0.00	-0.12	-0.18	-0.41	-0.47	-0.09
Average (simple)	-0.02	-0.15	-0.34	-0.55	-0.73	-0.15
Average (GDP weighted)	-0.02	-0.16	-0.38	-0.58	-0.79	-0.16

Source: Slovik and Cournède, B. 2011, p.10

Moreover, the implementation of Basel III will have an uneven distribution of costs not only among industrialized economies, but also between industrialized and emerging economies. Most studies tend to agree on the fact that the most significant costs in implementing Basel III will be felt in industrialized countries. Large emerging market economies such as China and India have often demanded most of their large banks to hold core tier one ratios above what required by Basel III. However, the way in which the impact of Basel III is modelled in most studies runs the risk of neglecting some of the channels through which these countries may be impacted by the implementation of Basel III. As the IIF has stated, emerging markets are more likely to be affected “from any economic contraction experienced by those mature economies to which they are connected via trade linkages; or from any potential reduction in financial flows from these countries induced by the more stringent regulation (e.g., the new liquidity requirements reducing the amount of trade credit granted)”.²⁷

Chart 1
Annual Additional Interest Costs for US and Eurozone Corporate Borrowers under Basel III Depending on Banks' ROE Targets



Source: Standard and Poor's 2011, p.11

²⁷ IIF (2011) p.9

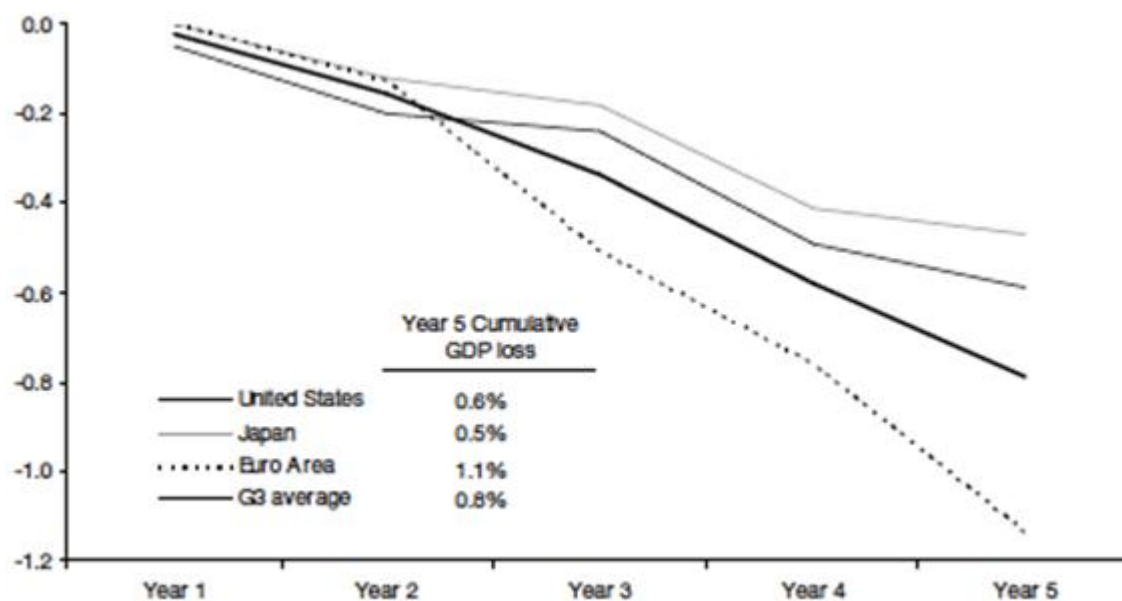
Thus, overall we see that as the costs of implementing Basel III will vary significantly across countries, it is important to avoid the mistake of generalizing the results of the analyses of the impact of Basel III on the real economy across countries.

5. Assessing the benefits of Basel III

Some of the studies have gone beyond simply providing an estimate of the costs of implementing Basel III and weighted them against the benefits brought by the agreement. However, similar to the methodologies employed to calculate the costs, there is divergence in the methodologies employed to estimate the benefits of Basel III, making also these results highly dependent on their underlying assumptions.

In particular, in its the report on the long-term economic impact of Basel III, the Basel Committee has quantified the benefits of implementing Basel III as “the expected yearly output gain associated with the reduction in the frequency and severity of banking crises”.²⁸ As the MAG acknowledged in its report, this way of conceptualizing the benefits of Basel III relies heavily on the need to develop plausible estimates of “three parts of the puzzle”²⁹.

Chart 2
OECD Study: Impact of Basel III Regulatory Reform on Level of G3 Real GDP
percentage point deviations from baseline



Source: IIF Sept 2011, p.83

The first is the “probability that a crisis will occur in any given year”.³⁰ The Basel Committee estimates that crises occur “on average once every 20 to 25 years”, with an “average annual

²⁸ BCBS (2010) p.8

²⁹ MAG (2011) p.20

³⁰ Ibid p.20

probability of a crisis in the order of 4 to 5%”, although financial crises have been re-occurring more and more frequently since the period of stability between WW2 and the early 1970s.³¹

Table 7

Banking crises in BCBS countries since 1985

	Reinhart and Rogoff (2008)	Laeven and Valencia (2008)
Argentina	1989, 1994, 2001	1989, 1995, 2001
Australia	1989	
Belgium	2008	2008
Brazil	1990, 1994	1990, 1994
Canada		
China	1997	1998
France	1994, 2008	2008
Germany	2007	2007
Hong Kong	1998	
India	1993	1993
Indonesia	1992, 1997	1997
Italy	1990	
Japan	1992, 2008	1997, 2008
Korea	1986, 1997	1997
Luxembourg	2008	2008
Mexico	1992	1994
Netherlands	2008	2008
Russia	1995, 1998	1998
Saudi Arabia		
South Africa	1989	
Sweden	1991	1991
Switzerland	2008	2008
Turkey	1991, 2000	2000
United Kingdom	1991, 1995, 2007	2007
United States	2007	1998, 2007
Frequency of banking crises 1985 - 2009		
All BCBS countries	5.20%	3.60%
G10 countries	5.20%	4.10%

Source: BCBS Aug 2010, p.39

Secondly, the second part of the puzzle is the estimate of “the real economic costs of a crisis”. The Basel Committee estimates that banking crises are associated with losses in output ranging “from a minimum of 20% to well in excess of 100% of pre-crisis output, depending primarily on how long-lasting the effects are estimated to be”.³² These figures reflect different temporary and permanent effects of crises, which according to the Basel Committee include the intensification in the depth of recessions due to collapse of confidence, increased risk-aversion, disruptions in financial intermediation (credit crunch, misallocation of credit), indirect effects associated with the impact on fiscal policy (increased public sector debt and taxation), and permanent loss of human capital.

³¹ BCBS (2010) p.3

³² Ibid p.3

Table 8

Estimated costs of different crisis episodes: results of selected studies for a range of crises									
As a percentage of a pre-crisis GDP									
Start of crisis ²	Peak to trough	Cumulative losses until end of crisis				Cumulative losses allowing for permanent effects			
		Cecchetti et al	Laeven and Valencia	Hoggarth et al	Cecchetti et al	Haugh et al	Boyd et al (M 2)	Boyd et al (M 1)	Haldane
Argentina	1980	14.1	10.8	25.9	44.5				
Argentina	1989	12.1	10.7	16.1	16.2				
Argentina	1995	6.1	7.1	5.8	5.2				
Argentina	2001	15.1	42.7		26.9				
Brazil	1990	11.4	12.2		6.0				
Brazil	1994	2.5	0.0	0.0	1.9				
Canada	1983			0.0			0.0	0.0	
Finland	1991	11.8	59.1	44.9	40.7	40.6	473.9	97.2	
France	1994			0.7			72.0	2.7	
Indonesia	1997	18.1	67.9	20.1	50.7				
Japan	1992	3.4	17.6	71.7	6.7	12.3	525.7	55.6	
	1990								
Korea	1997	9.2	50.1	12.8	9.3		694.4	17.7	
Mexico	1981		51.3	0.0					
Mexico	1994	10.4	4.2	5.4	10.7				
	1991								
Norway	1988	1.5	0.0	27.1	0.6	34.8	313.5	86.4	
	1987								
	1977								
Spain	1982			122.2		10.1	466.4	186.2	
Sweden	1991	5.8	30.6	3.8	11.0	16.7	256.7	58.4	
Turkey	2000	9.3	5.4		9.1				
UK	1974			26.5					
UK	2008								130-520
	1988								
US	1984		4.1	0.0		11.4	0.0	0.0	
	1990								
Average of shown crises		9.3	23.4	22.5	17.1	21.0	311.4	56	300

Source: BCBS Aug 2010, p. 38

However, these estimates of the benefits from the implementation of Basel III have been contested by the IIF, which argued that in the same way as the presented by the Basel Committee and other studies “have tended to downplay the economic growth costs of reform, we also believe that they have tended to overstate the *benefits of reform*”.³³

More specifically, the IIF has criticized the Basel Committee for having overstated the extent to which crises can be attributed to problems originating in the banking sector. The main criticism presented by the banking group to the Basel Committee is to have included in its assessment of the

³³ IIF (2011) p.10

frequency and costs of crises those which are associated with different causes, such as inappropriate monetary policies, unsustainable exchange rates, and mismanaged public finances. In these cases, banks are described as collateral damages of failings elsewhere in the economy rather than the primary source of financial instability.

Table 9
Annual probability of a banking crisis for given capital ratios
Average across 6 models, no change in liquid assets assumed

Capital Ratio	6	7	8	9	10	11	12	13	14	15
Implied probability of a banking crisis	7.2	4.6	3.0	1.9	1.4	1.0	0.7	0.5	0.4	0.3
Marginal reduction in probability resulting from an extra point of capital	..	2.6	1.6	1.1	0.5	0.4	0.3	0.2	0.1	0.1
Implied regulatory of a banking crisis (years)	13.9	21.7	33.3	52.6	71.4	100	143	200	250	333

Source: IIF Sep 2011, p.77

The IIF maintains in its report that under certain circumstances implementing the Basel III agreement may have the effect of increasing rather than reducing the probability of crises. This outcome could be the result of the agreement not reducing risks, but simply shifting them to from the banking sector towards less supervised corners of the financial system not covered by the agreement, such as the so-called 'shadow banking' system. Second, according to the IIF the new liquidity regime may increase risk by encouraging banks to hold excessive amounts of sovereign debt, which the recent Euro Area debt crisis has revealed to be not necessarily risk-free. Third, the imposition of higher capital and liquidity requirements has been described by the IIF as potentially increasing the probability of crises in the case that central bankers will respond by running a looser monetary policy in order to accommodate the adjustment process.³⁴

At the same time, other elements may amplify the benefits of the agreement beyond what critics point out. As the Basel Committee argues, the net benefits of implementing the agreement may be even higher if we consider that the government has held back the costs of the crisis by heavy intervention and that society may be willing to pay a premium to insure against an extreme event such as a banking crisis.³⁵ Moreover, the advantages of more stringent capital and liquidity requirements go beyond the decline in the frequency and severity of crisis to include a decline in output variability resulting from the lower leverage of banks induced by tighter regulatory measures. In this regard, Basel III has made reducing the amplitude of the business cycle and smoothing changes in the supply of credit one of its goals through the introduction of counter-cyclical buffers.

In sum, similar to the assessment of the costs of implementing Basel III, the assessment of the benefits remains highly dependent on the nature of the assumptions made. However, it is also important to point out that any attempts to weigh benefits against costs of implementation need to take into account two significant differences between the costs and the benefits of implementing Basel III that are missed by simple welfare analyses seeking to weigh one against the other. Firstly, when comparing the benefits and costs of implementing Basel III, it is important to point out that these will not be equally shared by different actors. While the costs imposed by the implementation of the new regulatory requirements fall primarily on the same banking institutions, the benefits of the reduced frequency and severity of crisis are distributed among a larger share of society.

³⁴ Ibid.

³⁵ BCBS (2010) p.5

Secondly, it is important to recognize that the different time horizon in which costs and benefits will materialize, with the costs concentrated in the short-term while the benefits of the agreement are distributed on a longer time horizon. The IIF in its study draws the analogy of an insurance contract where “the buyers of a contract are willing to pay a regular, periodic premium in return for insurance to provide against a sizeable but uncertain longer-term loss”³⁶. This different time horizon is likely to have a significant impact over the political struggle surrounding the implementation of Basel III. Indeed, the concentration of costs in the short-term has since the beginning triggered a mobilization from the banking institutions most directly affected by the agreement, which have been pushing for a more lenient implementation of the agreement. Banks have also in some cases, supported by the end-users of their services such as corporate borrowers, denounced how the costs of implementing the agreement may in the end passed to them in the forms of higher lending rates. However, the fact that the benefits of implementing of the agreement remain less visible and distributed over a longer period could represent a significant obstacle to the mobilization of actors pushing regulators to implement the agreement in full.

6. Conclusion

As different countries are moving towards the implementation of Basel III, this study has investigated some of the main reports that have tried to quantify the impact that this regulatory framework will have on the real economy. In order to explain the widely divergent estimates of the costs of implementing Basel III, it is important to consider how the estimates of the costs and benefits of Basel III are sensitive to some critical assumptions underlying these studies. This analysis has traced the origin of some of the disagreements in the different assumptions in this studies regarding 1) what elements of the regulatory regime are implemented; 2) the adjustment strategies that will be put in place by banks to meet the regulatory requirements; 3) the regional coverage of these analyses; and 4) the extent of the benefits from implementing the agreement.

The impact that these assumptions have in significantly altering the results suggests that a note of caution is required when interpreting the implications of these studies. Given the significant uncertainty surrounding what elements of the Basel III agreements will indeed be implemented at the domestic level and the possibility of significant divergence in the kind of domestic implementation, it is not difficult to hypothesise that the costs for individual banks may indeed be very different from what the different studies assuming full implementation predict. Uncertainties regarding what paths banks will follow in the implementation of the agreement, the timeline of the implementation, the reaction of markets, and the monetary response, further makes it difficult to have at this point a clear understanding of the extent to which the costs will be internalized by banks or passed through the rest of the economy. Moreover, not only the real costs imposed by the implementation of Basel III may significantly deviate from those predicted by these studies, but they will be distributed in a highly asymmetric way across countries as well as across different domestic actors within the same country.

The above analysis is not intended to detract from the value of conducting comprehensive studies of the economic impact of new regulatory measures before their implementation. In fact, part of the value of these studies often reside in their capacity to shed light over which factors will play a role in determining the economic impact of the regulation.

³⁶ IIF Sep 2011, p. 12

However, it is important to acknowledge how impact assessment studies are frequently more than simply attempts to take a snapshot of the costs that the regulation will impose in the future. Instead, they are frequently used by different vested interests as tools in the on-going political struggle over the implementation of Basel III, which inevitably involves accusations of partisanship in their results and presentation. Acknowledging the sensitivities to the methodological assumptions, as this study has attempted to do, is an essential component of building a more transparent and informed debate about the costs and benefits that regulation will create across societies.

Works Cited in the Text

BCBS (2010) *An assessment of the long-term economic impact of stronger capital and liquidity requirements*. Basel Committee on Banking Supervision, August 2010.

BCBS (2010c), “Results of the comprehensive quantitative impact study”, Bank of International Settlements.

Cosimano, T.F. and Hakura, D.S. (2011) *Bank Behavior in Response to Basel III: A Cross-Country Analysis*. International Monetary Fund, WP/11/119, May 2011.

IIF (2010a) *Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework*. Institute of International Finance, June 2010.

IIF (2010b) *The Net Cumulative Economic Impact of Banking Sector Regulation: Some New Perspectives*. Institute of International Finance, October 2010.

IIF (2011) *The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework*. Institute of International Finance, September 2011.

MAG (2010) *Interim Report. Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirement*. Macroeconomic Assessment Group established by the Financial Stability Board and the Basel Committee on Banking Supervision, August 2010.

MAG (2010) *Final Report. Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirement*. Macroeconomic Assessment Group established by the Financial Stability Board and the Basel Committee on Banking Supervision, December 2010.

MAG (2011) *Assessment of the macroeconomic impact of higher loss absorbency for global systemically important banks*. Macroeconomic Assessment Group established by the Financial Stability Board and the Basel Committee on Banking Supervision, 10 October 2011.

Miles, D., Yang, J., and Marcheggiano, G. (2011) *Optimal bank capital*. External MPC Unit Discussion Paper No. 31: revised and expanded version. Bank of England, April 2011

McKinsey (2010) *Basel III and European banking: Its impact, how banks might respond, and the challenges of implementation*. Study prepared by P. Härle, E. Lüders, T. Pepanides, S. Pfetsch, T. Poppensieker and U. Stegemann.

Roger, S. and Viček, J. (2011) *Macroeconomic Costs of Higher Bank Capital and Liquidity Requirements* International Monetary Fund, WP/11/103,

S&P's (2011) *Why Basel III And Solvency II Will Hurt Corporate Borrowing In Europe More Than In The U.S.* Standard & Poor's, 27 September 2011.

Slovik, P. and Cournède, B. (2011) *Macroeconomic Impact of Basel III*. Organisation for Economic Co-operation and Development, 844.

Some additional readings

Admati, A. R., P. M. DeMarzo, M. F. Hellwig, and P. Pfleiderer, (2010), "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is not Expensive," Working Paper Graduate School of Business (California: Stanford University).

Angelini, P., L. Clerc, V. Cúrdia, L. Gambacorta, A. Gerali, A. Locarno, R. Motto, W. Roeger, S. Van den Heuvel, and J. Vlček, (2011), "Basel III: Long-Term Impact on Economic Performance and Fluctuations," BIS Working Paper no. 338, Bank of International Settlements.

Bank of England (2010), "The Long-term economic impact of higher capital levels", Box 7 in Chapter 5 'Preserving Financial Stability', June Financial Stability Report, issue no. 27.

Barrell, R., David, E.P., Fic, T., Holland, D., Kirby, S. & Liadze, I., (2009), "Optimal regulation of bank capital and liquidity: how to calibrate new international standards", Occasional Paper Series no. 38, Financial Services Authority.

Elliott, D (2009): "Quantifying the effects on lending of increased capital requirements", Pew Financial Reform Project Briefing Paper, no 7.

Harle, P. E. Luders, T. Papanides, S. Pfetsch, T. Poppensieker and U. Stegemann (2010), "Basel III and European Banking: Its Impact, How Banks Might Respond, and the Challenges of Implementation", EMEA Banking Division, McKinsey.

The International Centre for Financial Regulation
5th Floor
41 Moorgate

London
EC2R 6PP
United Kingdom
Telephone: +44 (0) 20 7374 5560
Facsimile: +44 (0) 20 7374 5570
E-mail: enquiries@icffr.org
Website: www.icffr.org