Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework

Institute of International Finance

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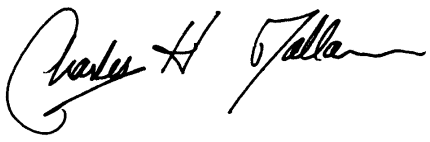
This report is an Interim Report of the IIF's Working Group to Assess the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework. The Working Group consists of economists and regulatory experts from IIF member banks, and is chaired by Philip Suttle, the IIF's Chief Economist. It operates under the auspices of the IIF's Special Committee on Effective Regulation, chaired by Peter Sands, Group Chief Executive of Standard Chartered Plc. The Working Group has been working for a number of months to prepare this report, which analyzes the impact of bank regulatory reform on the United States, Euro Area, Japan and (in aggregate) the emerging economies. We now judge that their work has come to sufficient fruition that it warrants sharing more broadly.

It should be emphasized, however, that this is an Interim Report. We aim to complete the Final Report of the Working Group during the second half of 2010. There are three dimensions along which we expect to strengthen the current Report in the months ahead. First, we intend to cover more countries in the study, including some smaller mature economies as well as some larger emerging economies. Second, we aim to strengthen and enrich the technical aspects of our modeling framework. Third, we hope to engage with experts and specialists in this area, including those from the official sector, which has embarked on a similar exercise. The outcome should be a collection of research that allows both industry practitioners and policy makers to understand the macroeconomic implications of the important banking reform program now underway.



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Our Objective

- A wide array of reforms to regulations governing the global banking industry has been proposed in recent months in response to the excesses that became evident in the 2007-08 global financial crisis. These include both those proposed by the *Basel Committee on Banking Supervision*, as well as from a variety of different national (and supra-national) authorities.

- The commonly expressed view is that whatever economic implications may result from implementing these reforms, they are a "cost worth paying" both to reduce the likelihood of future crises, and the whole economy costs of whatever future crises do occur. This may indeed be true, and it is certainly not the objective of this report to resist the fundamental case for deep-seated reform[1]. Rather, our objective is to put a firmer number on what that "cost worth paying" may turn out to be, measured in terms of gross domestic product (GDP) and jobs foregone. We do not address the benefits of reform, which can probably best be measured in terms of stability gains[2].

Our Approach

- In order to assess the impact of likely banking regulatory reform on the global economy, we have built a series of simple frameworks, which model the evolution of the banking system in aggregate, and its relationship to the broader economy[3].

- These models have a common structure across the major banking systems. In this *Interim Report*, we model the systems in the United States, Euro Area and Japan. We also address issues relating to the banking systems in emerging economies.

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[1] For complete reviews of the case for reform, see Brunnermeier, M., Crockett A., Goodhart C., Persaud A. and Shin, H.S. (2009) and Financial Services Authority (UK) (2009a).

[2] See Haldane (2010).

[3] For an assessment of possible effects on reform on the banking industry alone, see Abouhossein, K. et al. (2009a), (2009b) and (2009c); Barnes, R. (2010); Brennan, M. (2010); O'Donohoe et al. (2010a), (2010b) and (2010c); Samuels, S. et al (2010a), (2010b) and (2010c) ; Van Steenis, et al. (2010).

- In building these models, the lack of easy availability of key data has been a major challenge. In most countries, for example, it has been difficult to identify the aggregate balance sheet of the banking system in a fashion consistent with the capital and liquidity requirements of the *Basel Committee*. We have not been able (so far) to identify credible off balance sheet aggregates. This has made it impossible to model the constraints imposed by the proposal for a new leverage ratio, which would include both balance sheet assets and off balance sheet commitments. This is an important shortcoming in our modeling work, which would tend to bias our GDP cost estimates down.

- The banking balance sheet models are supplemented by aggregate profit and loss models, a simple bank capital supply framework, and a simple macroeconomic block, which links the evolution of nominal aggregate credit growth (both bank and non-bank) to GDP and employment.

- The logic of how the models work is fairly straightforward. For example, the imposition of higher capital ratios generally requires banks to raise more capital. Net new issuance puts an upward pressure on the cost of capital, which banks then add to their lending rates to the private sector. Higher lending rates reduce bank credit and, thus, the aggregate supply of credit to the economy. This, in turn, lowers GDP and employment. Higher liquidity requirements work through similar channels. Requiring banks either to hold more lower yielding liquid assets or issue more long-term wholesale debt squeezes bank profit margins. Lower profits not only make it more necessary to issue capital via markets (rather than through retained profits), but also make that issuance more expensive, as earnings disappointment makes equity investors more leery. Finally, higher bank taxes reduce post-tax profits and thus have a similar effect as reduced net interest margins.

- As with all models, our approach has advantages and drawbacks. On the positive side, the models allow us to impose most of the (quantifiable) reforms that are being proposed and trace their effect. On the negative side, our models contain relatively little behavioral feedback and rely very heavily on the credit transmission channel. The devastatingly weak performance of the global economy in 2008Q4-2009Q1 was a reminder of the significance of this credit channel, however[4].

- We obtain our results of the cumulative impact of reform by running two scenarios, from 2011 through 2020. One is a "base" scenario in which we use neutral long-term assumptions about GDP growth and inflation, and a regulatory environment with no significant changes beyond those introduced during and immediately following the crisis. The other is a "regulatory reform" scenario, in

[4] See Bernanke, B.S. and Lown, C.S. (1991), Bayoumi, T. and Melander O. (2008), Disyatat, P. (2010) and Cappiello, L., et al. (2010).

which we impose a series of regulatory changes that reflect (in both timing and magnitude) the key proposals. Our cumulative effects results are simply the differences between the two scenarios.

- It should be emphasized that we have had to make, in some cases, our own assumptions about the ultimate design and calibration of the new requirements. These assumptions may well turn out to be incorrect and, possibly, too excessive. They do not reflect industry positions on appropriate levels.

Our Preliminary Results

- For the "G3" (United States, Euro Area and Japan), we project that full implementation of regulatory reform on our assumed time frame would subtract an annual average of about 0.6 percentage points from the path of real GDP growth over the five year period 2011-15, and an average of about 0.3 percentage points from the growth path over the full ten year period, 2011-2020 (Table 1).

- The impact is more concentrated in the next five years because this is the period over which the bulk of the reforms are scheduled to be implemented. The fading in this effect as time passes, however, is consistent with the proposition that the long-run effects of these measures are probably relatively modest, but that the transition costs could be significant.

- The Euro Area is hit the hardest; Japan the least, with the United States somewhere in the middle. This relative ranking reflects two main factors: the size and significance of the banking system relative to the economy and the pattern of debt intermediation flows; and the extent to which systems need to adjust to meet the new requirements.

- There would also be direct and, more importantly, indirect employment implications resulting from this lower trajectory for GDP growth, especially during the transition period. Fewer jobs would be created during the economic expansion in our regulatory scenario relative to our base scenario.

- The current global banking reform program is the first to be negotiated under the auspices of the G-20, including participation by emerging market regulators in the *Basel Committee*. There could be three, possibly significant, negative spillovers for emerging economies. First, regulators in emerging economies *might* choose to pass on some or all of the global increase in capital and liquidity requirements to their local system, rather than letting their current ample buffers be reduced. Second, global banking flows could be hindered as large banks in mature economies bump into balance sheet constraints. Under the new leverage ratio proposal, undrawn trade finance lines will attract higher capital charges. Third, the

minority interest exclusion from capital will make the business models of many mature market banks active in emerging economies far more costly to operate. This could be especially damaging for parts of Emerging Europe.

Table 1

Cumulative Effects Results in Summary

difference between regulatory change and base scenario

Difference in average rates:	2011-15	2011-20
Real lending rate (bps)		
United States	169	136
Euro Area	134	97
Japan	76	60
G3 (asset-weighted)	132	99
Real GDP growth difference		
United States	-0.5	-0.3
Euro Area	-0.9	-0.5
Japan	-0.4	-0.1
G3 (GDP-weighted)	-0.6	-0.3
Difference in end-period values:	Through 2015	Through 2020
Core Tier 1 capital ($bn)		
United States	247	260
Euro Area	273	738
Japan	156	169
G3	676	1167
Nominal GDP ($ bn)		
United States	-951	-1297
Euro Area	-920	-1109
Japan	-130	-105
G3	-2001	-2510
Real GDP (% difference)		
United States	-2.6	-2.7
Euro Area	-4.3	-4.4
Japan	-1.9	-1.5
G3 (GDP-weighted)	-3.1	-3.1
Employment (million)		
United States	-4.58	-4.87
Euro Area	-4.68	-4.83
Japan	-0.46	-0.43
G3	-9.73	-10.12

Source: IIF Estimates

Key Considerations

- One very important aspect of our model, which heavily determines the results, is the nature of capital markets in bank paper—both for common equity and long-term debt. In our framework, it is always possible for banks to issue more of both categories of paper, as long as they are willing to pay an appropriate price. At one extreme, it could be argued that this pricing effect overstates the cumulative impact, because investors will demand a lower average return on equity, in return for the lower risk that a higher capital base implies. At the other extreme, however, it could be argued that banks will, at some point, face an absolute limit on the amount of either capital or long-term debt that can be placed in markets. If that limit is reached, then banks would have no option but to reduce (risk-weighted) assets to meet higher required ratios.

- Our model also implicitly assumes fairly flexible bank product pricing. The average lending rate rises to meet the rate of return requirements of equity investors. For this *average* to rise, however, banks either have to have the power to re-price existing loans or, perhaps more plausibly, have to attach far more stringent conditions on *marginal*, new lending.

- It should also be noted that the phase when the "transition drag" from tighter regulatory policies is likely to be at its maximum (2011-14), is also the period when fiscal policy in the mature economies is most likely to be at its tightest. There would thus be a double headwind to the expansion. Some offset to this could be provided by an easier G7 monetary policy, although there is currently limited scope for additional interest rate easing.

- In our view, the combination of easy G7 money and concerted banking regulatory reform could lead to a series of unintended consequences. Weaker near-term growth could lead to a less stable system. Additional credit restraint in Japan could worsen deflationary pressures there. The imposition of a leverage ratio could promote more, not less risky behavior from banks. There would be significant incentives for disintermediation of credit flows from the regulated, supervised banking system into the less well regulated credit sector which would, by definition, then become more systemically important. Finally, low rates in the G7 will likely continue to spur the flow of short-term capital to higher yielding emerging economies, adding to the headaches of policy makers there.

Chapter 1

The Net Cumulative Impact on the Global Economy of Increased Regulation of the Banking Industry

Introduction and Summary

- In order to assess the impact of likely banking regulatory reform on the global economy, we have built a series of simple macro-banking-economic models. In structure, our model is more similar to the frameworks used by equity market banking analysts than to formal macro models used by economists. Unlike banking analysts, however, our work is focused at the level of the consolidated banking system as a whole, rather than at the level of an individual bank.

- For the non-bank corporate sector, the main impact of these regulatory changes can best be conceived of as an inward shift of the bank credit supply curve: for any given price (in terms of spread over the government yield curve), there will be less availability.

- We construct our assessment of the net cumulative impact of the changes by running two scenarios through 2020. The first is a "base" scenario, where we maintain the same key regulatory requirements as are currently in place through the projection horizon. The second is a "regulatory change" scenario, in which we impose a series of regulatory changes (some global, some local).

- By 2015, the level of G3 real GDP under a regulatory change scenario is projected to be about 3.1% below what it would otherwise be. This amounts to an average of about 0.5%-0.6% per year clipped from the pace of the recovery. Thereafter, this drag fades very notably, however. For the US, the path of real GDP is projected to be 2.6% lower by 2015; for Japan, the path is 1.9% lower; but for the Euro Area the path is as much as 4.3% lower.

- The estimates from our models of the three leading financial systems is that, in total, banks will need to raise $0.7 trillion of common equity and issue $5.4 trillion, net, of long-term wholesale debt over the period 2010-15 in order to meet the capital and liquidity requirements likely to be part of the regulatory reform.

- Against a backdrop of continued restraint in bank lending—especially towards small and medium-sized businesses—there would appear to be significant risks relating to enforcing too much restrictiveness on banks too early in the business cycle.

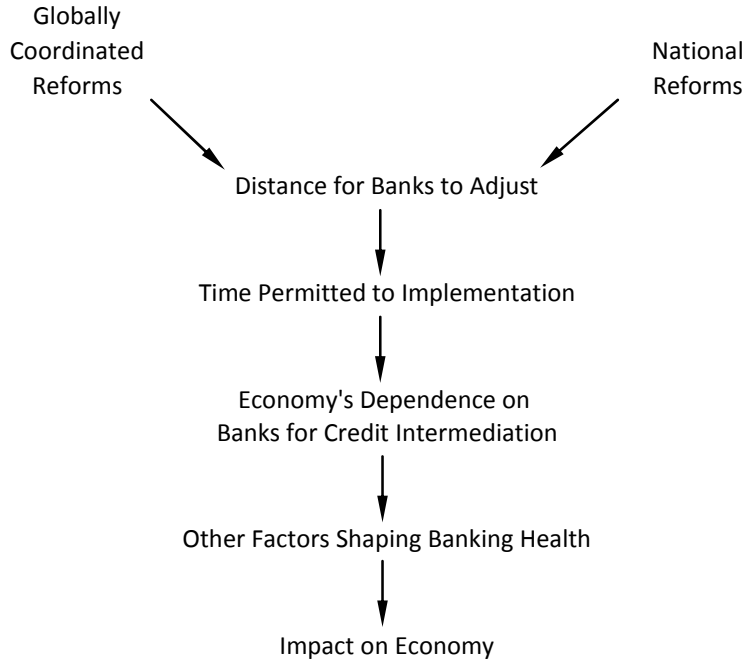
- Another argument for caution in rapid implementation of reforms that constrain bank lending is that the likely implementation phase (2011-2012) will correspond to the early stages of a synchronized and, probably quite protracted, effort at fiscal consolidation in the mature economies.

Assessing the Net Cumulative Impact

Any assessment of how the global banking industry will be affected by regulatory reforms designed to improve its long-run safety is inevitably a somewhat subjective endeavor. That said, we believe that it is possible to construct sensible frameworks to assess the possible macroeconomic impact of proposed changes (in terms of bank lending, growth and employment) so that this "cost" of reform can be benchmarked against the perceived benefits of reform[5].

In addressing the issue of what effects reforms will have, we use the following schema (Chart 1).

Chart 1
Schematic Outline of Differential Impact of Regulatory Reform



In broad terms, we believe that the magnitude of the impact of regulatory changes on the economy can be measured in five steps:

[5] This type of analysis is definitely a growth industry. Among the important early contributions are Barrell, R. et al. (2009a) and (2009b); Elliott, D. J. (2009) and (2010a) and (2010b); FSA (2009d).

- How significant are the reforms, at both the global and local level?

- How far away are banks now from where they would need to be to meet the requirements of reform?

- How much time will be allowed for banks to meet new reform proposals?

- How important is bank credit intermediation to the operation of the economy?
  - How big are banks relative to the economy?
  - How important are banks relative to non-banks in the process of debt intermediation?
  - How dependent is the economy on debt versus equity financing?

- What other factors are shaping banking sector (and broader economic) health?
  - Scope to ease monetary policy to provide an offset?
  - Scope to ease fiscal policy to provide an offset?
  - Non-bank private sector in re-leveraging mode?

Data for some of these variables are shown below (Table 2). In terms of starting points, the US appears favorably placed and the Euro Area less well positioned. For Japan, the major issue is one of low starting capital ratios.

Table 2
Factors Affecting Impact of Regulatory Reform
percent, end 2009

	Economy's dependence on banks		Distance for banks to adjust		
	Bank assets as % GDP	Banks' share of credit intermediation	Core Tier 1 capital ratio	Liquidity Coverage Ratio	Net Stable Funding Ratio
United States	83.1	23.6	10.5	81.8	84.3
Euro Area	346.6	73.8	8.0	27.8	61.9
Japan	168.8	52.6	4.1	92.4	82.6

Sources: National data and IIF estimates

The IIF Cumulative Impact Model

In order to address these questions in detail, we have built a series of macro-banking-economic models (see appendix for more detail). In structure, our model is more similar to the frameworks used by equity market banking analysts than to formal macro models used by economists. Unlike banking analysts, however, our work is focused at the level of the consolidated banking system as a whole, rather than at the level of an individual bank.

Each country model has four key blocks. Central to the country model is the **Banking Sector Balance Sheet Block** which captures the key adding up constraints in the country banking system. Aggregate banking system assets are divided into six categories: cash, government bonds, claims on the domestic financial system, claims on the domestic non-financial corporate sector, claims on households, and external claims. In turn, each of the latter four categories is broken into two sub-components, according to its weighting in the weighted risk-asset calculation: claims on domestic financial and non-financial corporate sectors are broken into the trading book and banking book; claims on households are broken into mortgage claims and (unsecured) consumer credit; and external claims (including external interbank claims) are broken into "safe" assets (i.e. high quality loans with low risk-weighting) and "risky" assets (i.e. loans to emerging market borrowers).

The balance sheet model allows us to capture most of the proposed regulatory changes. First, a required liquid asset ratio can be imposed as the key ingredient of a tighter liquidity regime. Second, the model allows us to change the risk weighting assigned to sub-categories of banks' assets. An increase in trading book capital requirements can thus be modeled straightforwardly. Third, and most importantly, the model derives key capital ratios, which are driven by a combination of regulatory requirements *and* national practice and local regulatory requirement.

The Banking Sector Balance Sheet Block is supplemented by the **Bank Capital Supply Block** and the **Banking Sector Profit and Loss Block**, to complete a quantitative framework of an aggregate banking system. That framework is then linked up to the **Macroeconomic Block**, which is both driven by the other components of the country model, and drives them (the model thus solves iteratively).

In our framework, economic growth is viewed as being ultimately driven by overall credit growth (both bank and non-bank). Thus, one key consideration is how much non-bank sources of credit can substitute for banks. In view of both recent *experience*—which seems likely to have dampened non-bank investors' appetite for private sector credit relative to investment in government debt—as well as likely *regulatory change*, which will likely slow the ability of banks to securitize their on-balance sheet assets, it seems likely that the growth in non-bank sources of credit will be relatively subdued in coming years.

For banks, a key driver of their willingness and ability to lend will be the combination of the various factors that shape the evolution of "core" capital. Higher regulatory requirements will raise banks' demands for capital (for a given asset structure), or—perhaps more plausibly—will cause banks to hold more conservative asset compositions for a given amount of capital. Core capital is boosted by higher retained earnings, and depleted by credit losses (which will, in turn, be driven up by slow nominal growth). Most importantly, banks face an upward sloping supply curve for bank capital. This

curve could be particularly sharply upward sloping in coming quarters, as higher capital ratios are enforced (either by regulators or, de facto, by markets)[6].

Banks are then likely to pass this higher (shadow) cost of capital on to private sector borrowers in the form of higher lending spreads. **For the non-bank corporate sector, therefore, the main impact of these regulatory changes unfolding can thus best be conceived of as an inward shift of the bank credit supply curve: for any given price (in terms of spread over the government yield curve), there will be less availability**. The impact of this supply curve shift on the outcome for private sector bank credit will be determined by the precise shape of the private sector credit demand curve, which we assume is downward sloping with respect to lending spreads. The more elastic that demand curve, the more damaging will be the overall effect of higher capital charges on economic activity.

Results in Summary for Key Economies

The results from our studies of individual economies are discussed in more detail in Chapter 3-6, but are summarized in the following charts and Table 3. We construct our assessment of the net cumulative impact of the changes by running two scenarios through 2020:

- The first is a "base" scenario, where we maintain the regulatory requirements as they are today through the projection horizon.
- The second is a "regulatory change" scenario, in which we impose a number of regulatory changes (some global, some local).

We define the difference between the two paths in these scenarios as the net cumulative impact of regulatory reform.

The most significant aspect of the difference between the two scenarios is the rise in the real lending rate charged to the private sector in the regulatory change scenario, relative to the base, which generally peaks in 2013-14 (Chart 2).

The aggregate employment as well as GDP implications are significant (although the former naturally follows from the latter; Chart 3). There is a growing body of evidence highlighting the sensitivity of employment to credit. Firms facing tighter credit conditions find it harder to "hoard" labor[7].

[6] There is rich, but somewhat inconclusive academic literature of the role of bank capital. See Allen, F. and Santomero, A.M. (1999), Santos, J.A.C. (2000), Shrieves, R.E. and Dahl, D. (1991) and Van Hoose, D. (2007).

[7] See Wasmer, E. and Weil, P. (2000) and Dromel, N., Kolakez, E. and Lehmann, E. (2009).

Chart 2

Change in Real Lending Rate to Private Sector Borrowers*

basis points

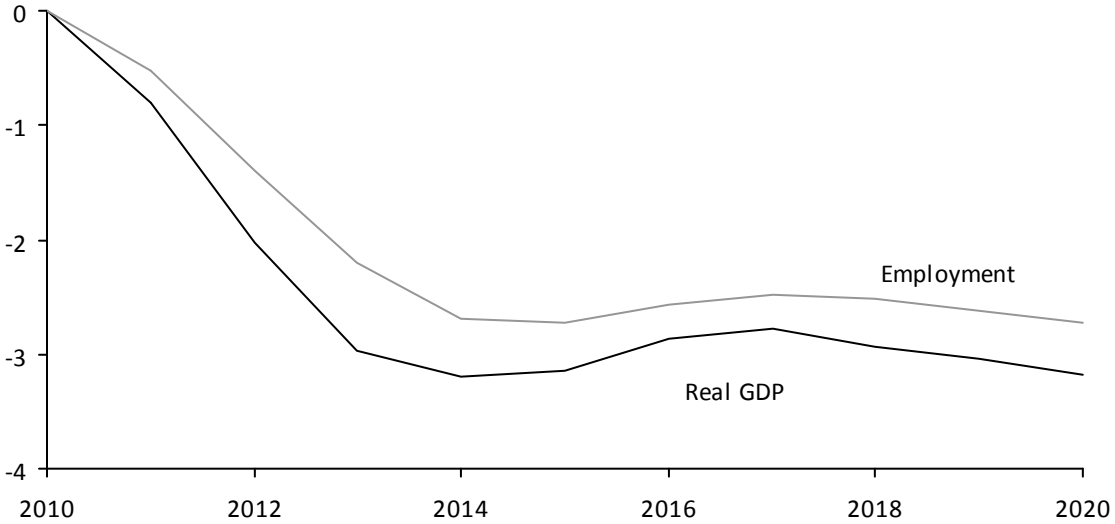
* Difference between bank lending rate paths in "regulatory reform" scenario versus "base" scenario

Source: IIF Estimates

Chart 3

G3: Change in Real GDP and Employment*

percent



* Difference between Real GDP and Employment paths in "regulatory reform" scenario versus "base" scenario

Source: IIF Estimates

Table 3

Cumulative Effects Results in Summary

difference between regulatory change and base scenario

Difference in average rates:	2011-15	2011-20
Real lending rate (bps)		
United States	169	136
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Employment (million)		
United States	-4.58	-4.87
Euro Area	-4.68	-4.83
Japan	-0.46	-0.43
G3	-9.73	-10.12

Source: IIF Estimates

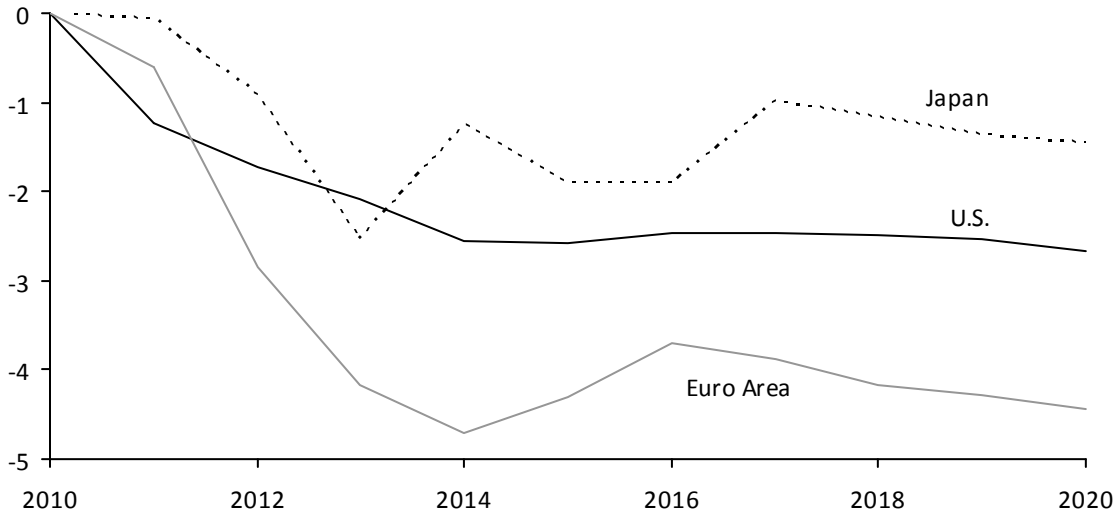
The reason for the “hump” in lending rates is that the cumulation of regulatory change reaches its maximum at that point. As a result, banks are under the maximum pressure to “defend” their profit margins which they do by raising lending rates. Note that this pressure on banks to raise lending rates comes from capital markets, where investors demand a target (risk-adjusted) return on bank equity.

In turn, this interest rate profile helps shape lower paths for both real GDP and, thus, employment through the projection horizon. It should be emphasized that these are lower paths relative to a baseline of no significant increase in capital ratios and liquidity requirements, although banks would nonetheless hold substantially more (and better quality) capital and liquidity through this base scenario than they held in the period of serious excess in 2005-06.

Chart 4

Change in Real GDP*

percent



* Difference between Real GDP paths in "regulatory reform" scenario versus "base" scenario

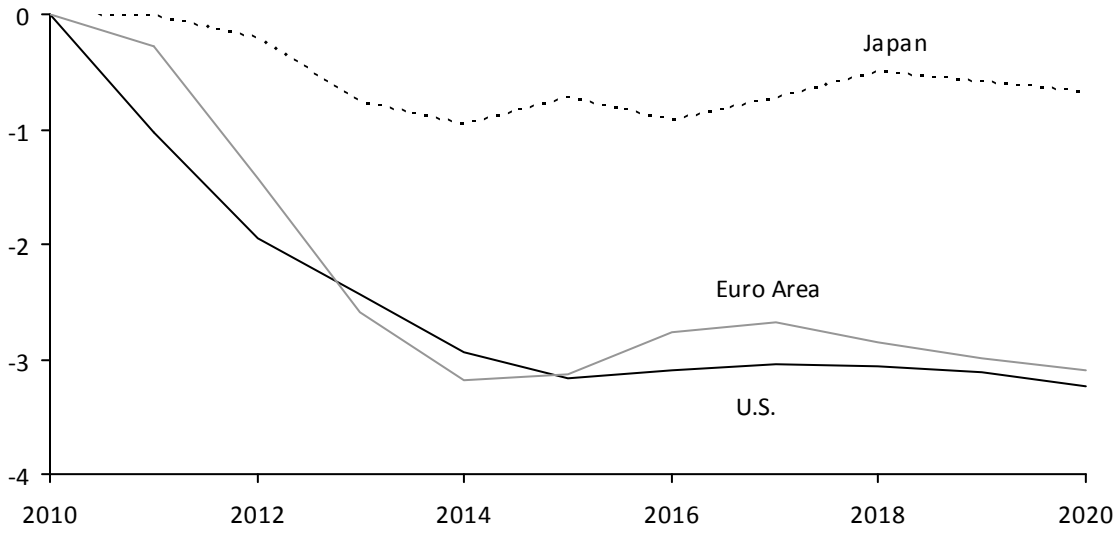
Source: IIF Estimates

By 2015, the level of G3 real GDP in a regime of regulatory reform is projected to be about 3.1% below what it would otherwise be. This amounts to an average of about 0.6% per year clipped from the pace of the recovery. Thereafter, this drag fades very notably, however. For the US, the path of real GDP is projected to be 2.6% lower by 2015; for Japan, the path is 1.9% lower; but for the Euro Area the path is as much as 4.3% lower. The Euro Area would thus appear to be most vulnerable to the impact of regulatory reform. Intuitively, this should not be too surprising, since the Euro Area banking system is large both relative to the economy (about 350%) *and* as source of debt financing for the economy (about 75% of total debt financing), and this all in an economy where financial structures are relatively heavily geared to debt rather than equity.

Chart 5

Change in Employment*

percent



*Difference between employment paths in "regulatory reform" scenario versus "base" scenario

Source: IIF Estimates

Box 1: Some Frequently Asked Questions

Have we used the correct methodology?

We believe that our methodology – summarized in the appendix to this chapter – is an appropriate balance of theory, reality, detail and generality. Some of the benefits and drawbacks of our approach are reviewed later in this Chapter. We designed the framework to address the specific question of what the macroeconomic effects of banking reform might be.

How confident are we in our estimates?

We believe that our estimates are a reasonable central estimate of the net impact of reform measures on bank lending rates. We accept that there is probably a significant range of variation around these measures (although do not yet have good measures of the potential distribution). We have less confidence in mapping the likely lending rate increases into the broader economy, but we view our estimates as sensible benchmark assessments as to the impacts on GDP and employment, given the increase in bank lending rates.

Aren't they too large?

It is important to remember that our estimates are based on the cumulative impact of at least six changes in the regulatory environment, each of which exerts some squeeze on bank margins. For example, higher liquidity requirements work powerfully from both sides on margins: liquid assets earn lower rates of return than illiquid assets; and

long-term funding is more expensive than short-term funding. There are growing indications, however, that full array of reforms actually implemented, as well as their timing, will be less onerous than we are currently assuming.

Can't banks just absorb these costs?
The answer is, to an extent, yes. In our regulatory scenarios, we assume that banks control non-interest costs (much of which is compensation) very aggressively. But a squeeze on margins eventually finds its way to lower banks' profitability. The resulting disappointment on earnings makes equity holders more leery of holding bank capital and thus makes it more costly to banks to issue more. The role of the capital markets in funding banks is central in our approach (see below).

Haven't banks already adjusted, so we've already taken any pain?
Banks have indeed generally adjusted rapidly over the past couple of years, especially in the United States. But it would be a mistake to think that, even after those adjustments, banking systems are where they need to be to meet these new requirements. Moreover, some of today's balance sheet positioning reflects very conservative banking behavior inspired either by nervous markets, or the recent memory of a near-death experience (and, in the United States, the rigors of the SCAP). A tougher regulatory environment would make this conservative positioning permanent, which would dampen the ability of banks to finance the recovery in the quarters ahead.

Does the economy really need bank lending to grow?
Even if the scope for bank lending is restricted, it is possible that the economy could do better, especially if there are financing alternatives to banks. For example, both Mexico and Korea were able to recover (in 1995-96 and 1998-99, respectively) without a rebound in bank lending. Of course, we do not know what would have happened in these two cases if banks had been strong. The recovery might well have been even more vigorous. For the mature economies, recent extreme weakness in bank lending and the severity of the accompanying recession serve as graphic reminders of the powerful link between banking sector balance sheet adjustment and economic activity.

What about the alternatives to bank lending?
The economic damage done by restricting bank activity could be limited if there were alternative financing sources for economic activity. Unfortunately, this "spare tire" theory of debt intermediation has not held up too well in recent years, and the alternatives in the debt intermediation process appear limited, especially for households and small and medium sized enterprises seeking to access credit markets. In this context, it is crucial to remember one of the most basic functions provided by banks: maturity transformation. Banks transform liquid short-term liabilities into illiquid longer-term loans. To the extent that other institutions develop to perform the same activity (e.g., money market funds), then they are essentially performing the same role as banks, with the same risks for both the institution and the system as a whole.

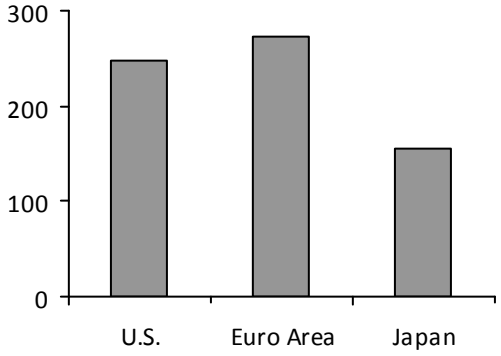
The Key Determinant: Capital Market Conditions for Bank Paper

The estimates from our models of the three leading financial systems is that, in total, banks will need to raise $0.7 trillion of common equity and issue $5.4 trillion, net, of long-term debt over the period 2010-15 in order to meet the capital and liquidity rules currently likely to be part of a scenario of regulatory reform, relative to their funding needs from these markets in a scenario of no regulatory reform (Charts 6 and 7).

Chart 6

Net New Core Tier 1 Equity Issuance Required 2010-15 *

$ billion



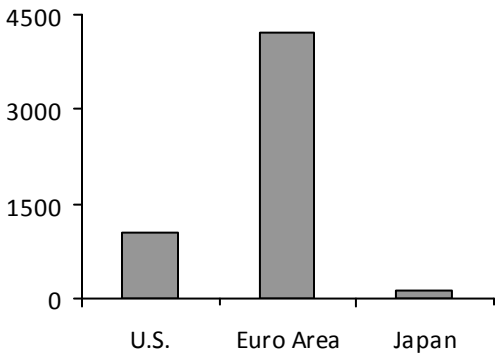
* Derived as difference in core Tier 1 equity of banking system in 2015 in regulatory change scenario relative to no change scenario

Source: IIF Estimates

Chart 7

Net New Long Term Debt Issuance Required 2010-15 *

$ billion



* Derived as difference in long-term wholesale debt of banking system in 2015 in regulatory change scenario relative to no change scenario

These amounts are large, and will lead to an increase in the cost of funding to banks through these two channels. The absolute size of these demands also raises questions about whether these amounts are feasible:

- In the case of debt, the increase cost of funding will take the form of higher debt spreads on bank issued paper. In our models, we assume that spreads widen 140 basis points, on average, in order for this paper to be placed with investors. As noted, it is an open issue as to whether the issuance of such large amounts of bank paper even at such higher spreads is a feasible outcome, however. The appetite of investors in bank paper in the future will be heavily influenced by the outcome of the regulatory debate. This hinges not so much on the capital and liquidity discussion (although the need to achieve a minimum Net Stable Funding Ratio is a key reason for so much debt issuance). Rather, the uncertainty relates to the greater risk now likely to be associated with bank debt, since such creditors are now widely expected to suffer significant haircuts under new resolution regimes in the event of

market-based run on the banking system[8]. A bondholder assessing the risk of exposure to any individual bank will, therefore, need to assess the likelihood of a capital market run on not just that bank, but also to (global) banking sector, which could come back to affect the value of his or her investment.

- New equity investors in banks will seek a higher *ex ante* rate of return on equity in order to be attracted to purchase such securities. We model this *ex ante* rate of return (which we call the "shadow" price of equity) as the sum of four components:
  - a core objective of (12.5% for the US, 10% for Euro Area and 5% for Japan);
  - plus half of the difference between the rate of growth of bank equity and nominal GDP in each period; this term captures the "upward sloping" component of the bank equity supply curve[9];
  - minus half the difference between the realized rate of return on equity and the core objective in the previous period[10];
  - minus half of the difference between the banking system's actual capital ratio and the ratio set by local supervisors[11].

  The resulting "shadow price" of equity enters the bank lending pricing term as the "cost" of equity that the bank charges in setting rates to borrowers (see Appendix for more details).

As with the supply of debt, however, we have concerns that the absolute supply of bank equity may not be as smooth and continuous as our model assumes. Bank equity has become a more risky asset class in recent years. In contrast to bondholders, who have generally been supported by government guarantee and lending programs, equity holders have suffered considerable losses (as should be the case). Looking ahead, policy makers are determined that bank equity holders will bear relatively more of what risk banks are allowed to take. This means either that investors are likely to demand a higher ex ante rate of return (i.e. our core objective term could be too low, especially in Japan), or that an adequate equity rate of return may be hard to achieve if prudential limits on banks are tightened significantly (i.e. banking is forced more into the "utility space"). Moreover, dividend payments by banks are much diminished, and likely to remain so as banks re-build core capital. Finally, some jurisdictions are tightening limits on the potential investors in bank equity. For example, the new Solvency II requirements in Europe will reduce of insurance companies' scope to hold bank equity.

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[8] The emphasis of these resolution regime proposals is to avoid the need for use of central bank lending or any other form of government support that might imply a future direct liability for taxpayers.

[9] Nominal GDP is used as a proxy for the aggregate portfolio of potential investors in bank equity. For investors to raise their exposure to banks, they must be compensated adequately.

[10] This is a penalty/reward term: if a bank over achieves return targets in one period, it finds it cheaper to raise equity in the next (and vice versa).

[11] This is a "Modigliani-Miller" term, which recognizes that banks will be seen as less risky by investors the more capital that they hold (in excess of the regulatory minimum). The effect of this second term is to cancel out, somewhat, the first.

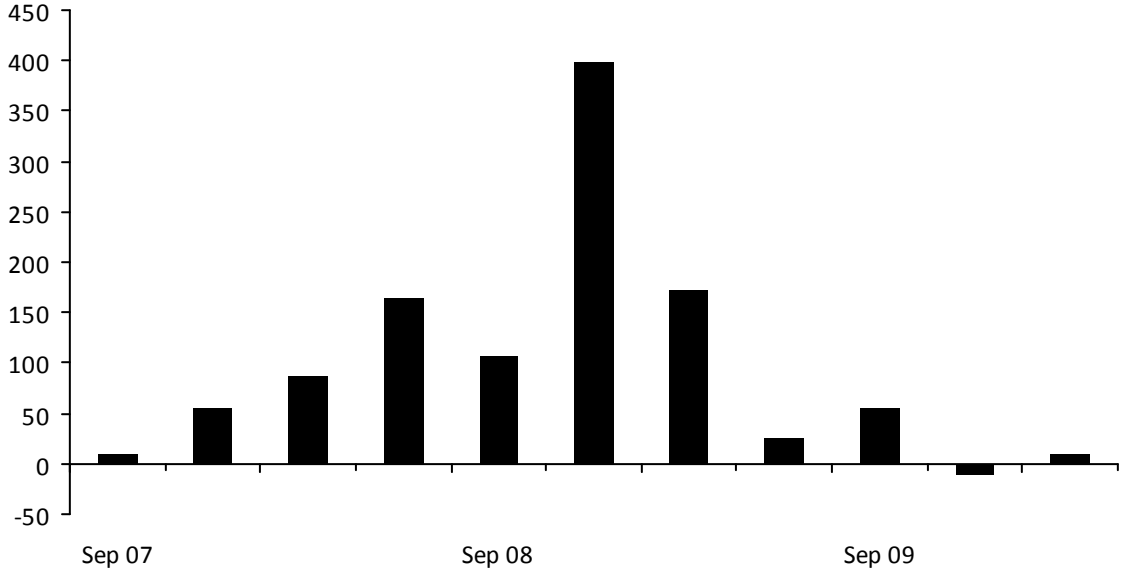
If the supply curves for either bank capital or long-term debt liabilities were to become inelastic (i.e. investors became unwilling to buy more of either instrument at any price), then the banking system would be faced with a "sudden stop": i.e. the need to produce a sudden reduction in bank assets very quickly. This is liable to be very damaging to the economy, especially since banks would be forced to cut short-term lending facilities, which typically support working capital. The burden of the adjustment could also fall heavily on households and small and medium-sized enterprises[12].

It is helpful to scale the amounts of likely future capital needs against the aggregate amounts of capital raised since the onset of the crisis in the middle of 2007. According to (widely cited) Bloomberg estimates, banks have raised about $1 trillion of capital from all sources over a three year horizon since the onset of the financial crisis (Chart 8)[13]. This covers all banks and not just those in the three leading jurisdictions.

Chart 8

Net New Bank Capital Issued 2007Q3-2010Q1

$ billion



Source: Bloomberg, IIF Estimates

Banks have raised capital from three main sources. In 2007-2008H1, sovereign wealth funds were key providers, buying a total of $56 billion, or 13% of bank equity issued in 2007Q3-2008Q3 (Chart 9). In 2008Q4-2009Q2, governments in the mature economies—primarily the United States and the United Kingdom—became major providers of bank equity. In the case of the United States, however, most of this has since been repaid

[12] An extreme version of such a "sudden stop" occurred (for different reasons) following the collapse of Lehman Brothers in September 2008.

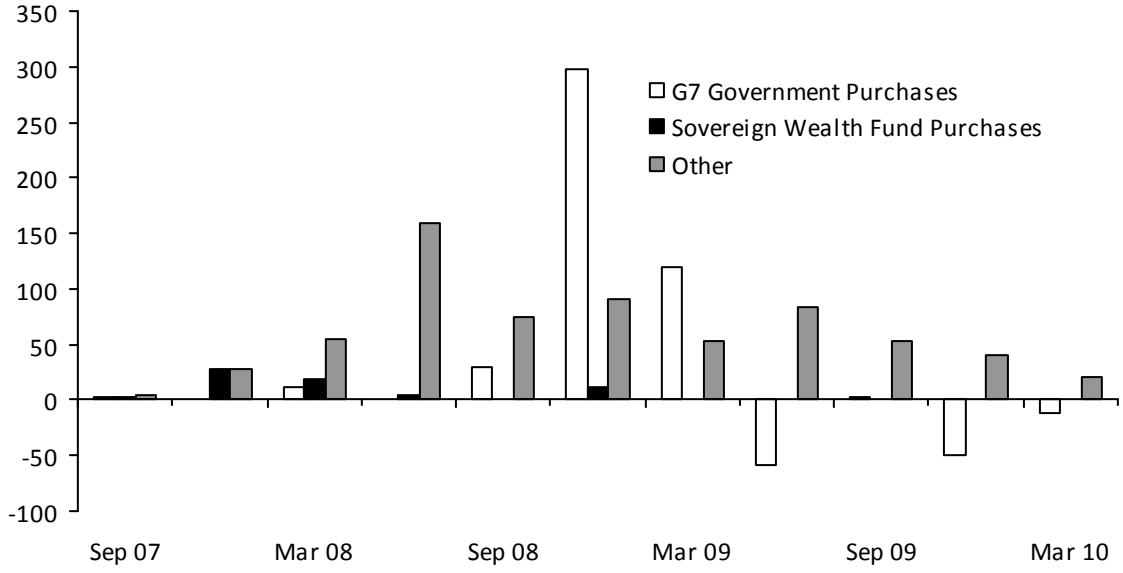
[13] Note that we have adjusted the Bloomberg data to account for repayment of equity by banks to the US Treasury under the TARP program and other measures taken to provide support to banks. According to the US Treasury, about $180 billion of the $245 billion that was invested in 707 banks has since been repaid.

(accounting of the negative purchases in 2009Q2-2010Q1). The residual, which can be interpreted as the amount of common equity issued to traditional buyers of bank equity, has averaged about $60 billion per quarter since 2007Q3.

Chart 9

Net New Bank Capital Issued 2007Q3-2010Q1

$ billion



Source: Bloomberg, IIF Estimates

Avoiding Pro-cyclicality in the Reform Effort

The recent weakness in bank lending has been a hindrance to the global recovery. While the tightening in bank lending standards across the major jurisdictions appears to be over, bank lending caution seems inevitable for the foreseeable future, in part driven by tougher oversight by supervisors criticized for missing unduly lax bank lending practices in the last cycle.

Against this backdrop, there would appear to be significant risks relating to enforcing too much restrictiveness on banks too early in the business cycle. There are multiple plausible (nominal) paths that the global economy could follow in the years ahead. The most likely one seems to be one where the mature economies, in aggregate, grow quite slowly in nominal demand terms, while emerging economies grow quite rapidly[14]. The implication of this is that nominal credit growth in the mature economies will be relatively subdued, while it will be more brisk in emerging economies[15]. But it is also

[14] See IMF (2010a).

[15] One corollary of this would be that banking sector risks are liable to grow in emerging economies in coming years, as credit growth booms and confidence about future growth (and thus debt-servicing capability) rises. See Chapter 6 for more discussion of emerging economies.

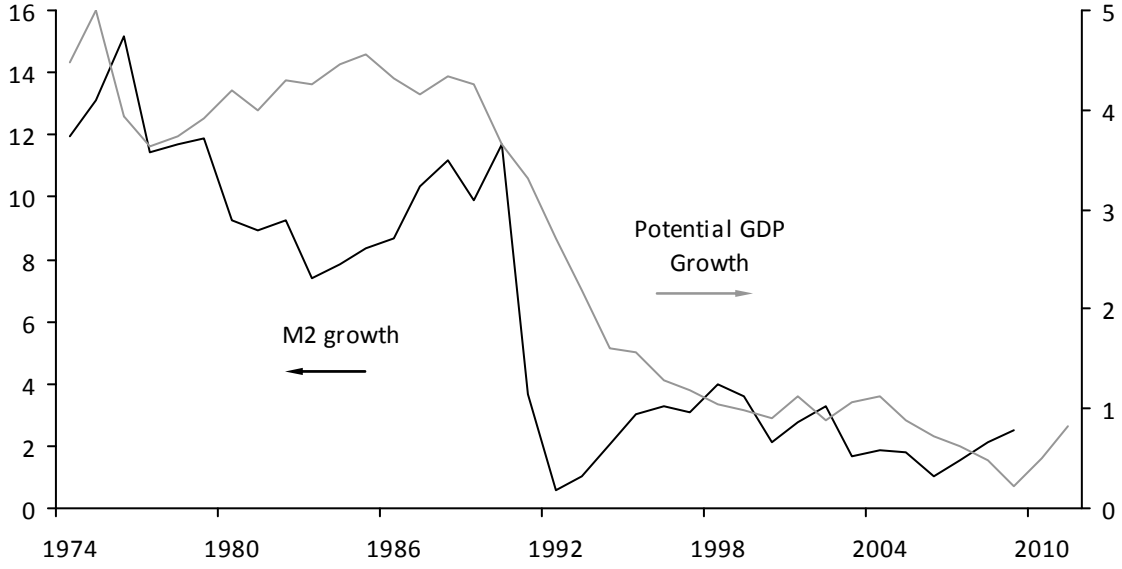
quite plausible that too much restrictiveness on bank lending in mature economies would lead to a deflationary path for nominal GDP, which could then become a self-reinforcing spiral that even an extremely easy monetary policy stance might find it impossible to escape.

Japan offers a vivid example of how this can happen (see Chapter 5). While the reasons for Japan's extensive experience with weak nominal GDP are not fully understood (if they were, the economy would probably have been able to escape them by now), the correlation between the collapse in Japanese credit growth and the economy's potential growth rate is quite striking (Chart 10).

Chart 10

Japan: Money Supply and Potential GDP Growth

percent, y/y



Sources: Bank of Japan, OECD

Several commentators, including central bank officials, have argued that the threat of contractionary effects of tighter bank regulation should not be a concern since these can be offset by central bank easing[16]. This view seems too blasé for four important reasons. First, it ignores the example of Japan, where a decade of zero interest rates has not worked to counter nominal weakness in the broader economy. Second, this view (in our opinion) tends to underestimate the likely impact of proposed regulatory reform in raising lending rates to private sector borrowers. Third, the scope to lower central bank interest rates in coming years will likely be limited, given their low starting point. Finally, there are broader distortionary implications likely to result from a situation where domestic bank lending margins in mature economies are higher, but key central bank lending rates are held close to zero (as in Japan) for an extended period. Those

[16] See Miles (2009).

distortions could show up in another credit bubble in the unregulated financial sector in mature markets or, more likely, in a bubble in emerging economies.

Sequencing Policy Tightening

Another argument for caution in rapid implementation of reforms that would constrain bank lending is that the likely implementation phase (2011-2012) will correspond to the early stages of a synchronized and, probably quite protracted, effort at fiscal consolidation in the mature economies[17].

The explosion of budget deficits in mature economies coincided with the recent credit shock, especially the phase of severe stress following the collapse of Lehman Brothers in September 2008. In other words, the growth in the leverage of the public sector has been something of the mirror image of the deleveraging of the private sector. Some of the rise in budget deficits is due to the direct fiscal costs of the financial sector interventions[18]. Some was also due to explicit counter-cyclical policy easing. Most, however, seems to have been the result of cyclical factors, operating mainly through swings in tax revenue. In the last cycle, strong tax revenues look to have been driven by credit fueled asset price gains, and the rapid evaporation of the latter led to a plunge in the former.

While it would be undesirable to try to return to a state where rapid asset price inflation was propping up nominal tax growth, there seems little doubt that the process of public sector *de-leveraging* would be helped by a process of private sector *re-leveraging*[19]. Put another way, the process of public sector deficit reduction in the years ahead will be made a lot harder if the private sector remains cautious about debt accumulation and seeks to run a persistent financial surplus. The likely outcome would be very subdued nominal GDP growth and, thus, weak growth in tax revenue. Once again, Japan stands out as a case of how not to do it.

Stability Benefits of Reform

Our study focuses on a specific angle of the reform debate, namely the plausible estimates of costs associated with imposing a particular type of banking sector reform over a specific time horizon. Our study is thus not a full cost-benefit analysis.

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[17] See Cecchetti, S.G., Mohanty, M.S. and Zampolli, F. (2010).

[18] In the United States, for example, the addition of Fannie Mae and Freddie Mac added $291 billion, or 2 percentage points to the 2009 Federal budget deficit; see CBO (2010).

[19] Arithmetically, this need not happen since the foreign sector could, in the aggregate, build up its leverage. For the mature economies as a block, the "foreign sector" is the emerging economies, which do seem likely to experience a reduction in their external surpluses and a greater propensity to import capital in the years ahead. See Chapter 6 and Suttle et al. (2010a) and (2010b).

The stability benefits of regulatory reform are potentially very large, although as conceptually challenging to measure as the costs (which are the focus of this study). The benefits come mainly in the form of lower systemic risk. In this context, it is worth bearing several key points in mind, however:

- Previous efforts at global reform of international banking regulation have evidently not been met with the stability success that had been hoped for by their authors[20]. Moreover, their implementation led to the creation of a number of unintended consequences, many of which—in retrospect—are now seen to have been very undesirable[21]. Just as the costs of reform are very hard to quantify and subject to considerable uncertainty and debate, so too are the benefits.

- The severe and generalized economic costs associated with the debacle credit boom and bust of recent years were sufficiently extreme to underline that major changes were indeed needed in international banking practices. From early on in the crisis, the members of IIF have been active in taking the lead in promoting improved industry-wide market practices, and we believe that these improved practices and behaviors will be a major ingredient in supporting the more sustainable, stable banking flows necessary for future economic growth[22]. From the official sector perspective, the case for improvements in supervisory practices (i.e., the enforcement of existing regulation) would seem to be at least as important as the case for more regulation.

- A typical by-product of greater regulation of the banking industry is the encouragement of disintermediation – i.e. the transfer of credit flows from the regulated bank sector to the unregulated non-bank sector. The creation of the "shadow" banking system in the years leading up to July 2007 is a good example of such a development. The ability of non-bank credit intermediaries to step in for the banks and thus provide non-bank borrowers with a healthy supply of competitively-priced credit is often cited as a reason why the damage from any extra layers of regulation on banks will be minimal. But this assertion would seem to risk confusing the institutions that are classified as banks with the function which is the hallmark of banking, namely the transformation of liquid short-term liabilities into less liquid longer-term assets. To the extent that the function of banks is increasingly carried out by non-bank intermediaries, then this would seem to be simply shifting systemic risk, rather than reducing it. In such circumstances, the benefits of a more regulation

[20] See Tarullo (2008) for a comprehensive summary of the recent history of international banking regulation.

[21] The most conspicuous example of this is the "regulatory arbitrage" encouraged by Basel I, which led, inter alia, to the creation of what is now commonly termed the "shadow" banking system.

[22] See IIF (2008) and IIF (2009a) and IIF (2009b).

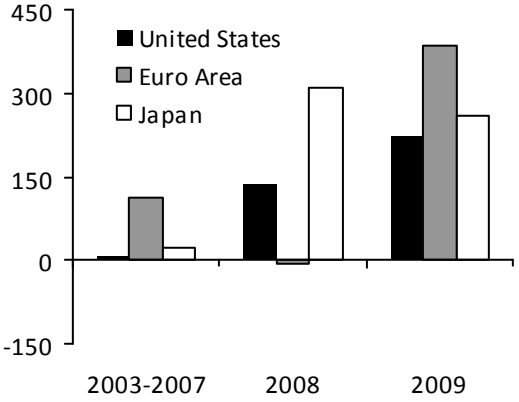
(in the form of a more tightly managed banking system) might turn out to be illusory[23].

- One outcome of the need for banks to meet higher liquidity requirements—especially in the Euro Area—is the likelihood that they will purchase substantially higher amounts of low yielding government debt. This is indeed already happening (Chart 11). This would make banks vulnerable to two new sets of risks: (i) duration risk resulting from potential losses on holdings of higher coupon longer-term bonds funded by shorter-term liabilities; and (ii) sovereign credit risk, which has risen quite sharply in recent months (Chart 12).

Chart 11

Net Acquisition of Central Government Debt by Banking Systems

$ billion

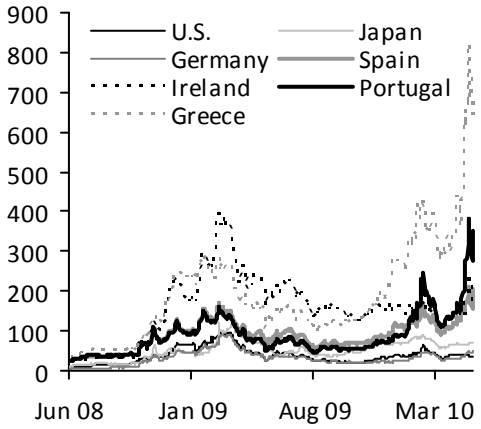


Source: IIF Estimates

Chart 12

5-Year Sovereign CDS Spreads

basis points



Source: Datastream

Advantages to the IIF Methodology

We believe that our approach to assessing the plausible macroeconomic impact of key banking sector reforms is a helpful and informed contribution to the debate that will better inform policy makers in their analysis as they move ahead with the global reform process in the months ahead. In our view, its advantages are four-fold:

- By starting with a detailed analysis of the banking system, we are able to impose a series of regulatory changes and assess their plausible impact on bank lending conditions. In turn, we are able to map those lending conditions into key macroeconomic outcomes. The approach thus blends the "micro" bank level

[23] It should be remembered that the extreme global financial instability of 2008Q4 and the resulting massive infusion of public risk was triggered by the near-collapse of the US money market fund sector. See also Tucker (2010).

approach, as typically performed by bank analysts, with the macroeconomic analysis needed to produce whole economy results.

- The analysis is rooted in data, and takes the current reality as the starting point. It is not a theoretical analysis of a long-run steady state.

- The framework is common across the major jurisdictions and thus allows for contrasts and comparisons.

- The framework is transparent. Because we use a spreadsheet-based approach, our time series, projections, model frameworks and parameter values are readily observable.

Drawbacks to the IIF Methodology

While we feel that our approach offers many useful insights into the possible cumulative macroeconomic effects of the reforms likely to be proposed by the *Basel Committee*, we are aware that our approach suffers from a number of shortcomings. While we do not feel that these shortcomings invalidate our core results, they are a reminder that all results should be treated as a preliminary assessment. These shortcomings will serve as the basis of our future research agenda in this area:

- The output of any framework of analysis is only as good as the inputs that serve to go into it. One problem that we have had in constructing our models is data availability (see box). For some countries, we have found adequate sources of data that meet our requirements. In other cases, however, we have been required to mix and match data from a variety of sources. The macro data issue raises important concerns, since many of the data that we use in our study would presumably be central to the process of macro prudential supervision.

- Our model incorporates a number of important behavioral linkages, but more needs to be done to develop these models in two ways. First, while we have made our best efforts to estimate relationships using historical data, we have also been required to impose coefficients in other equations that we believe to be sensible, but which obviously condition the results of our work[24]. Second, the links between the banking sector and macroeconomic blocks in our models is very basic and driven simply through a credit channel. Moreover, our macroeconomic block is missing some important linkages, including the feedback from outcomes in the credit markets to monetary policy. As outlined above, a scenario in which regulatory reform leads to a weaker outcome for aggregate credit growth and, thus, the broader economy could

[24] An example would be the parameters associated with our equation shaping the shadow price of capital, which is, inherently, an unobservable term (see Appendix, pages 30-35).

be avoided by an offsetting reduction in official interest rates. In our model, rates are set exogenously, but some kind of feedback mechanism could be specified.

- Our models are also explicitly national in construction. We project the evolution of each banking system's external assets and liabilities. We are also mindful of the spillover effects of several national banking systems all trying to raise substantial amounts of common equity and long-term debt in global markets simultaneously. Otherwise, however, interactions between national models are lacking.

- Our scenarios projecting the impact of various regulatory reforms capture only a part of the changes now being discussed (see Chapter 2). In part, this is because our focus is on measures that are likely to be agreed internationally under the auspices of the Basel Committee on Banking Supervision; in part, it also reflects the not fully specified nature of some of the nationally-based proposals; in part, it also reflects the difficulty in amending our framework to capture adequately the implications of the proposals in question[25].

- Our framework focuses on the consolidated national banking system and cannot differentiate between type of bank or borrower. In our view, however, some of the regulatory measures proposed are likely to have an importantly differentiated effect across both lending institution and, especially, type of borrower. This topic is discussed in each country chapter, but the general point would be that small and medium-sized enterprises (SMEs) are typically far more dependent on bank financing than other forms of credit intermediation (especially securities issuance). A set of regulatory changes that encourages disintermediation from the banking system is thus almost certain to bias credit flows away from SMEs to larger companies that enjoy direct access to public securities markets[26].

[25] For example, our framework would not offer a particularly useful way of assessing the costs of introducing a "narrow banking" framework.

[26] For SMEs, the main access to public securities markets is through securitization – a route that has been severely damaged in recent quarters and which regulatory reform proposals will probably weaken further.

Box 2: Data Issues

One of the major challenges of our exercises was building datasets for each country which pull together—at the whole economy level—data on the banking system in a usable form for our analysis. Country specific data issues, and how we handled them, are covered in the appendices to following chapters.

Our biggest headache has been constructing the banking sector's overall balance sheets, such that assets are appropriately divided (e.g. into banking book and trading book), and the other side of the balance sheet is appropriately split into regulatory capital and liabilities. In view of the significance to be placed in meeting aggregate capital requirements, we have found it surprising (and perhaps telling) that such data are so hard to find on a consistent, cross-country basis[27].

The challenge of collecting off-balance sheet data was so overwhelming that, for now, we have not addressed this issue. This is a problem, as the proposal to introduce an aggregate leverage ratio, with total assets defined to include off balance sheet positions is an important part of the Basel Committee proposals. Unfortunately, we have found no way of assessing the macroeconomic effects of this proposal on a comprehensive, global basis[28].

Indeed, we would strongly recommend that macroprudential supervisors place a far greater emphasis on the collection (and dissemination) of timely whole economy data on banking sector balance sheets, profit and loss statements and, especially, capital structures. An ideal place for this would be a data annex of each country's Financial Stability Report (usually produced by the local central bank). It is, of course, possible to build up a macro picture bank-by-bank, but our efforts to do this (using publicly available databases such as Bankscope) produced challenges with varying sample sizes.

[27] The IMF would seem well placed to step up to perform this function. In a way, this would mirror the role played by the IMF in the aftermath of debt crises in emerging economies in the 1990s, when the provision of more complete, relevant and timely information was seen as key aspect of improving the performance of financial markets.

[28] For an assessment of the potential impact of the leverage ratio on the German economy, see Frenkel and Rudolf (2010).

Appendix: The IIF Projection Model in Outline

In order to simulate plausible effects of regulatory changes on the major economies, we have built a series of spreadsheet-based projection models, which attempt to capture an appropriate combination of detail, behavior and adding-up constraints. Although each country model has its own local flavor, they all have a similar structure, which is described below.

The model is built from four basic blocks: (a) a banking sector balance sheet model; (b) a core capital supply model; (c) a banking sector profit and loss model; and (d) a macroeconomic block, which links the output from the balance sheet model to the broader economy.

Proposed regulatory reforms are imposed as a series of shocks to the banking sector's balance sheet, which – ex ante -- have the effect of squeezing banking sector profit margins. Faced with capital market disciplines, banks then pass on this squeeze to private-sector borrowers. This squeeze then reduces bank credit supply to the private sector, which weakens economy-wide private sector credit growth, nominal real GDP growth and, thus, real GDP growth and employment.

Banking Sector Balance Sheet Model

The banking sector is modeled as a single unit. In this context, banks can be thought of as providing a specific function: taking in deposits from the public with a generally short-term tenor, and transforming those deposits into longer-term loans to the private sector (businesses and households). There are other parts of the financial system that provide credit intermediation services between borrowers and lenders, and the behavior and response of these to proposed regulatory reforms is an important consideration for the outcome of the macro framework (see below). But our detailed focus is on the banking system.

We start with the basic balance sheet definition:

(1) ASSETS = LIAB + CAP

Banking sector assets are categorized into three significant categories: (a) liquid assets (cash and government securities), which are safe (zero risk weighted) but low yielding; (b) loans to, and holdings of securities issued by, the non-financial corporate sector (these are risky, but more profitable); and (c) external assets (which can be either safe or risky depending on the nature of the ultimate borrower). This asset mix can be written as follows:

(2) ASSETS = CASH + GOV + IB + CORP + HH + EXTA + OTHERA

The path of liquid assets (CASH+GOV) is determined by the need to maintain a specific liquid asset ratio. In turn, this is one of mechanisms through which some of the liquidity provisions of proposed regulatory reform can be introduced.

The path of private sector credit (CORP+HH) is one of the key outputs of the model, since it is, in turn, a key driver of output growth, inflation and employment. Its path is determined by the combination of nominal GDP growth in the previous year, the *change* in the real lending rate charged by banks on their loans and the difference between the real rate *level* in the regulatory versus the base scenario. This amounts to saying that there is a downward sloping demand curve for bank credit with respect to price, and upward sloping with respect to activity:

(3) $\Delta CORP+HH = f\ (\Delta NOMGDP/NOMGDP_{t-1}, \Delta REALRATE, [REALRATE_{REG} - REALRATE_{BASE}])$

For the banking sector as a whole, therefore, one key decision variable is what rate to charge on their lending. As will be seen below, this lending rate is determined by the profit and loss and bank capital supply blocks. But the (monopoly) banking sector is assumed to face a downward sloping demand curve for credit, and essentially picks where it wants to be on that demand curve (i.e. there is no credit rationing in our framework).

Another key way in which regulatory reform enters the model is for higher capital requirements to make banks want to choose a point on the private sector's credit demand curve that is more to the north-west (i.e. higher price, lower quantity). This amounts to saying that regulatory reforms will lead to a leftward shift in the bank lending supply curve.

External assets (EXTA and OTHERA, which includes banks' fixed assets) are assumed to evolve along a path determined by nominal GDP, although the allocation of external assets between "safe" and "risky" allocations (i.e. to foreign holdings of OECD area government bonds versus lending to emerging economies) is viewed as a bank decision variable that will affect the use of regulatory capital.

Finally, it should be noted that both interbank lending and exposures to the corporate sector are split into trading book and banking book components:

(4) IB = IB(TB) + IB(BB)
(5) CORP = CORP(TB) + CORP(BB)

This is relevant since the two components are assigned different weights in a risk-weighted asset framework, and an increase in risk weightings of trading book assets from 2011 onwards is one of the regulatory changes underway.

The liabilities side of the balance sheet is broken into four main components. Retail deposits (M1) are projected to evolve along a path determined by nominal GDP. This amounts to assuming that banks are takers of all deposits that "walk in the door". Similarly, inter-bank borrowing (M2) and external liabilities (EXTL) are projected to evolve along neutral, nominal GDP paths. Finally, wholesale market borrowing (M3) is determined as a residual, since it amounts to the extra amount of funding needed to support banks' assets, given the capital structure and funding achieved from other sources.

(6) LIAB = M1 + M2 + M3 + EXTL

Wholesale funding, in turn, is split into short-term and long-term:

(7) M3 = M3(LT) + M3(ST)

Making this split allows us to identify another way in which regulatory reform affects bank behavior, as the net stable funding requirements (part of the liquidity reforms) will require banks to hold relatively more long-term wholesale funding. Since interest payments on M3(LT) exceed M3(ST), this implies an additional squeeze on net interest margins and, thus profitability.

Finally, banking sector capital is broken into a number of key subcomponents: balance sheet capital (CAP), regulatory capital (REGCAP), Tier 1 and Tier 2 capital (T1 and T2) and core-Tier 1 capital (TCE):

(8) CAP = REGCAP + REGADJ
(9) REGCAP = T1 + T2
(10) T1 = TCE + NONCORE

In turn, these drive certain key balance sheet ratios, where risk-weighted assets (RWA) are generally the denominator. Realized capital ratios can be written as the sum of specified minima (BIS and BIS(T1)) and national buffers (BUFCAP and BUFCAP(T1)). Note that we further break the Tier 1 national buffer into two components: a buffer required by national supervisors under Pillar 2 arrangements, and an excess maintained by the banking system, presumably for its own prudential purposes. This is relevant in the context of the bank capital supply model (see below):

(11) $RWA = \Sigma w_i * ASSET_i$
(12) REGCAP/RWA = BIS + BUFCAP
(13) T1/RWA = BIS(T1) + BUFCAP(T1)
(14) BUFCAP (T1) = REQ(P2) + EXCESS

Banks' Core Capital Supply Model

The banking sector capital supply model is focused on the evolution of the flow variables that drive the stock of core Tier 1 capital, or tangible common equity (TCE).

There are three variables that drive the evolution of TCE:

(15) $\Delta TCE = NEWTCE + PROFRET + REDEF$

where NEWTCE is new (market) issuance of TCE and PROFRET is the amount of undistributed profits, when PROFRET >0, and is the amount of shareholder capital extinguished when banks (in aggregate) make a loss. The third variable, REDEF, is driven by the way in which core Tier 1 capital is affected by redefinitions of capital. These are usually negative.

The variable NEWTCE is assumed to be a decision variable, in aggregate, for banks. Capital markets are willing to supply capital to banks at an appropriate price and this pricing, in turn, drives banking sector loan pricing, which is a key variable in the banking sector profit and loss (P&L) model (see below).

This appropriate price is a "shadow price", or an *ex ante* aspiration of the rate of return on equity that banks try to achieve (ROE_{shadow}). In our work, we have assumed that this variable is, in turn, driven by four factors:

(16) $ROE_{shadow} = Target + \theta_1 (TCE\ growth - Nominal\ GDP\ growth)_{t-1} + \theta_2 (Target - Realized\ ROE)_{t-1} + \theta_3 (EXCESS)_{t-1}$

where each of the θ_i elasticities is > 0. Banks thus aspire to make a target ROE to keep shareholders happy, but this aspired return is increased when (in the previous period):

- the growth in bank core equity has exceeded the growth in nominal GDP (this is akin to an upward sloping supply curve for TCE to the banking system from global capital markets);
- the *realized* rate of return on equity in the previous period falls short of the aspired rate (in the case of the U.S. this is 12.5%, for the Euro Area 10% and for Japan 5%) – this variable is a proxy to a "punishment" variable; and
- the realized capital ratio in the previous period short of the ratio (minimum plus national buffer) required by local supervisors (i.e. EXCESS, as defined from equation (14) above, is negative). This last variable rewards banks for being "safer" (i.e. having more capital) and punishes them for falling short on this front.

Banking Sector Profit and Loss Model

The profit and loss model is very straightforward, although it is something of the engine room of the model. Its two key outputs are the amount of profit retained (PROFRET) and

thus added to core Tier 1 equity (TCE), and the spread charged by banks on their loans to households and businesses, which is the main driver of the key variable REALRATE (see equation (3) above).

Banking sector profits are straightforwardly defined as net interest earnings (NIE), plus net other earnings (OOE; e.g. fees, commissions and trading income), less non-interest costs (mainly labor costs), less credit losses (CREDLOSS), plus other items:

(17) PROFIT = NIE + OOE – NIC - CREDLOSS + OTHER
(18) POSTTAXPROFIT = (1-τ) * PROFIT, where τ is the average tax rate
(19) PROFRET = π * POSTTAXPROFIT
(20) NIE = INTEARN - INTCOST
(21) INTEARN = FFUNDS * CASH + BOND * GOV + BOND * IB(TB) + (BOND + SPREAD) * IB(BB) + (BOND + SPREAD) * CORP + (BOND + SPREAD) * HH + EXTARATE* EXTA
(22) INTCOST = (FFUNDS + M1FUNDSPREAD) * M1 + (FFUNDS + M2FUNDSPREAD) * M2 + (FFUNDS + M3FUNDSPREAD) * M3(ST) + (BOND + M3FUNDSPREAD) * M3(LT) + EXTLRATE * EXTL

In our projections, the share of profits retained, π, is a decision variable, and CREDLOSS is tied to the business cycle. OOE and NIC are projected to evolve along paths driven by nominal GDP.

Most projection paths for most interest rates in the model are set by assumption. The term structure of official interest rates – the official policy rate at the short end (FFUNDS) and the 10-year bond yield at the longer end (BOND) form the basis for most interest rate calculations.

The key model-determined variable in the P&L block is the spread over official rates to be charged by banks in their lending to private sector borrowers (SPREAD). This is determined by taking the overall profit equation (17), dividing it through by CAP (to give return on equity), setting the left-hand side of the resulting equation equal to the shadow cost of equity (equation (16)), and then re-arranging that equation to solve out for the one unknown: SPREAD. The real borrowing rate thus facing the private sector (which shapes the evolution of bank credit growth to the private sector) is then given by:

(23) REALRATE = BOND + SPREAD – PGDPG

Where PGDPG is the inflation rate in the GDP deflator.

Macroeconomic Framework

The macroeconomic framework is based on a straightforward idea that nominal GDP growth is supported by nominal credit growth. There are a multitude of theories that can be used to support this proposition, but our approach is more pragmatic: activity needs credit, and vice versa. For each country model, we have estimated a simple equation, where we link nominal GDP growth to bank credit growth to businesses and households, as well as to credit growth from other sources. The path of nominal GDP (NOMGDP) growth is deflated to produce a path for real GDP (RGDP) growth. The GDP deflator (PGDP) is driven by an output gap model. Finally, the path of real GDP drives a path for (whole economy) employment (EMPL):

(24) $\Delta NOMGDP/NOMGDP = f\ (\Delta CORP/CORP; \Delta HH/HH; \Delta NONBKCRED/NONBKCRED)$, where $f' > 0$

(25) $\Delta NONBKCRED/NONBKCRED = f\ (\Delta(CORP+HH)/(CORP+H))$

(26) $\Delta PGDP/PGDP = f\ (\text{Output Gap})$, $f' > 0$

(27) $\Delta RGDP/RGDP = \Delta NOMGDP/NOMGDP - \Delta PGDP/PGDP$

(28) $\Delta EMPL/EMPL = f\ (\Delta RGDP/RGDP)$

This reduced form approach of macro modeling could clearly be enriched over time, in part to allow other feedback mechanisms and interactions to develop. For example, the policy rate and government bond yield are set exogenously in our framework, but could be made endogenous in future research.

One additional important area for future research is the evolution of non-bank credit channels and, in particular, the ability of non-bank credit to substitute for bank credit as regulatory reform crimps the ability of banks to lend. Currently, the path for non-bank credit growth is driven by bank credit growth.

Chapter 2

Planned Regulatory Measures

A very wide array of measures is currently under consideration by policy makers. While the industry broadly supports the goals of stronger, more consistent regulatory capital and liquidity norms, the likely changes in regulation will impose significant new burdens on the banks, place constraints on balance sheets, affect their cost of capital, perhaps make it more difficult to get assets off balance sheet, change asset preferences as well as business behavior, and hence have potential implications for the supply of credit. For the purposes of this exercise it is appropriate to distinguish among the measures currently under consideration on a number of dimensions: the clarity with which the proposals have been articulated, the directness of any effect on the banking system and the likely timing of their implementation.

- **Clarity of the proposals**. None of the regulatory changes under consideration by the *Basel Committee on Banking Supervision (BCBS)* has yet been calibrated[29]. That will await the outcome of the Basel QIS and other impact studies. However there is, even at this stage, much more specificity about the thrust of some measures than others. It is clear, for example, that there will be significant adjustments to the quantity and quality of Tier 1 capital requirements, even though the final scope of the detailed proposals published by the *BCBS* and the magnitude of the ultimate new requirements have yet to be specified. Detailed proposals have been made on a leverage ratio and on liquidity, but the final shape of those regimes is still far from clear. It seems likely that the *BCBS* will change the proposal from gross calculation of the ratio into a net calculation more akin to those already in use in Canada, Switzerland, and the US. Comments from the *BCBS* have also indicated that, while the two liquidity ratios currently proposed had broad support, attention would need to be given to the many specifics of the proposals that have been criticized by the industry. In contrast, only directional indications have been published on capital buffers and macro prudential regulation, to be fleshed out later this year. And it is possible, though still far from certain, that direct limits (in addition to those implied by capital, leverage and liquidity requirements) may be placed on the size of banks or the scope of their activities, probably outside of the Basel structure.

  An unexpected addition to the lack of clarity has come from the U.S. Senate, where a last-minute amendment promoted by the FDIC and opposed by the Fed would, if it

[29] For full details, see BIS (2009c) and BIS (2009d). The one exception to this is the change to the trading book arrangements which are finalized except for the treatment of correlation trading and other technical details that need attention, BIS (2009b).

survives the reconciliation process with the House and is included in the final law, take away from major US banks any benefit of the advanced Basel II capital calculations, requiring them to be subject to at least the capital requirements produced by the standardized approach for smaller banks. It would also mandate that only common equity could be included in Tier 1 (not what Basel calls Other Going Concern Capital such as trust preferred). These amendments would greatly complicate the US role in the negotiation of the final Basel revisions due to be finalized by the end of the year.

- **Directness of effect**. Significant changes in the quantity or quality of required capital or liquidity will directly affect firms' lending behavior. At the opposite extreme, requirements for detailed recovery or resolution plans could also directly affect individual banks significantly, particularly if they lead supervisors to require some restructuring of banks' operations.

- **Timing of the proposal**. There is some uncertainty about the timing of the capital proposals. The aim is that they will be introduced by 2012[30] (as per the commitment by the G-20), but the *BCBS* has made it clear that general imposition of requirements will depend in part on assessment of the recovery of the system. The Secretary General of the *BCBS* has recently underscored the Committee's intent to meet the deadlines of completion of fully calibrated proposals by the end of 2010 and implementation in 2012, subject to analysis of the impact on recovery. Regarding grandfathering, the Basel documents foresee some grandfathering of existing capital instruments, but without specificity. The industry is also arguing for phasing in the more drastic capital and liquidity requirements. The timing of non-Basel changes, including those that may involve changes to the structure of the banking industry, is much less certain and the industry would argue ought to be subject to extensive grandfathering.

In the remainder of this section (and in the following paper) therefore proposed regulatory changes are classified according to whether they are category 1, 2 or 3 according to the following criteria (Table 4).

[30] With the exception of the new trading book rules which are to be implemented by the end of 2010.

Table 4 Category	Definition	Measures included
1	High level of conceptual clarity (albeit unquantified) Substantial technical changes possible, but clear direct effect on lending High/reasonable clarity regarding timing	Quantity of capital Quality of capital (including deductions) Trading book changes Leverage ratio Liquidity changes Countercyclical buffers
2	Fair degree of clarity regarding concept Clear potential effect on lending Low clarity regarding timing	Capital requirements on systemic firms Recovery and Resolution plans 'Volcker' and other plan to limit scope or size
3	Basic concept proposed Significant effect on lending but exact mechanism may be unclear Low clarity regarding timing Unclear that there is global consensus	US "push out" of derivatives business Subsidiarization requirements Cross-border resolution regime Bank tax and levy arrangements

Category 1 Measures

Most of the capital and liquidity proposals currently under consideration by the *BCBS* qualify as category 1 in terms of the above classification. The following needs to be borne in mind however:

- A detailed and extensive list of proposals has been published. The list is not final however and some proposed measures may be dropped or amended in the light of discussion (or others added);
- None of the measures has yet been calibrated;
- The final package is likely to involve elements of a trade off—for example with changes in required capital levels depending to some degree on the extent to which necessary increases in prudential standards are achieved through changes in the capital calculation requirements and definition of capital used in the Basel formula;
- The liquidity, leverage, and certain other technical points have been the subject of extensive criticism and are likely to be revised as to many details as well perhaps as some important, basic design elements, but are likely to survive in revised form.

Total Minimum Capital

The current requirement is that banks hold total minimum capital equivalent to 8% of risk weighted assets. This is potentially subject to revision and could increase to 9% or even 10%.

Tier 1 Capital

Tier 1 capital under the Basel proposal consists of retained earnings and common equity, both subject to deductions (see below) as well as "additional going concern capital", which up to now has meant hybrid instruments. The current requirement is that Tier 1 capital is equivalent to 4% of risk weighted assets. This may increase—perhaps to 6%. Under the present standards, as little as half of the Tier 1 requirement can be accounted for by retained earnings and common equity (before regulatory deductions). The intention in the new regime is that Tier 1 should consist "predominantly" of common equity and retained earnings. "Predominant" has not been defined, but could be as much as 85% of total Tier 1, according to some reports.

Additional Going Concern Capital

There is a much increased focus in new proposals on the 'loss absorption' capacity of hybrid capital instruments on the basis of stringent criteria that would preclude various previously used instruments, although the full impact will depend on final requirements including the definition of "predominantly", as discussed above.

- The current 'Sydney' definition allows hybrids up to 50% of Tier 1, but there is wide variation in the allowance and interpretation of acceptable instruments across jurisdictions.
- "Innovative hybrid" instruments, now allowed at up to 15% of total Tier 1 would be phased out altogether under current proposals.
- The new criteria generally make the instruments more equity-like and reduce investors' formal or informal seniority and protections. Debt instruments recognized for Other Going Concern purposes would need conversion or write-down features.
- These changes would reduce banks' flexibility in offering instruments to different classes of investors other than equity investors, and probably increase costs by making it more difficult to issue tax-deductible instruments.

The effects of these changes will vary greatly across banks, depending both on their existing capital structures and the appetite of their primary markets for Tier 1 instruments. Many banks have relied extensively on "hybrid" securities to provide Tier 1 capital, often on a tax-deductible basis.

The impact on banks will come from (a) the level at which "predominant" is set (in many countries banks were hitherto allowed to have up to 50% of Tier 1 in hybrids, so that a higher requirement would have a significant effect on capital costs), and (b) the much more demanding minimum requirements for "other going concern capital", which would greatly affect the markets for such instruments, albeit in ways that cannot yet fully be understood. There are thus uncertainties about the amount of equity a given bank would have to have and about the pricing of and market for the new instruments.

The *BCBS* is considering the terms of grandfathering existing hybrids, but there are as yet no specifics and, furthermore, it is unclear how markets and rating agencies will

treat banks that attempt to continue to rely on grandfathered instruments for a protracted period.

Tier 2 Capital

Tier 2 "gone concern" subordinated debt capital, which would provide resources available in the event of the winding up of a firm, is being simplified in the Basel proposals. There is concern that prescriptive Basel proposals may limit the terms on which banks can sell such instruments (e.g., minimum maturity and amortization periods), and hence make it more difficult to raise such capital. There is also concern that, although both banks and supervisors should have an incentive to raise gone-concern capital, the focus on Tier 1 and Predominant Tier 1 by supervisors and markets may erode the value of Tier 2 for regulatory and market purposes.

Contingent Capital

It is likely that contingent capital—that is debt which is convertible into equity in certain prescribed stressed conditions—will be allowed or possibly even required. As yet the features of permissible instruments and their maximum permitted share in total capital (and whether they would count as Tier 1 or Tier 2) are unclear, as are pricing and whether there would be a market for them.

There are extensive debates in the official and private sector both about the characteristics of such instruments, including such fundamental questions as whether they should convert into going-concern capital (equity) or convert only upon insolvency to provide gone-concern resources; the levels at which conversion triggers should be set (well above, near, or at the point where the firm might enter into the "recovery" phase, or at insolvency), and whether triggers of conversion should be objective and mandatory, optional with management, or under the control of regulators.

In terms of their financial impacts on banks, the question is whether such instruments could be priced to be attractive for banks to issue (relative to the cost of equity) and yet compensate investors for the "insurance" risk of conversion. The final contours of the instruments will determine whether they have any attraction to fixed-income investors or the investors who have been interested in hybrids hitherto; some forms might be attractive to hedge funds but not to traditional bank investors. If, as is sometimes suggested, banks would be obliged by regulators to issue such instruments, efforts by numerous banks to sell them in large amounts would certainly have effects on the banks' cost of capital.

Definition of Capital: Deductions

The Basel proposal aims to harmonize regulatory adjustments to capital, such as deduction of goodwill, which are not covered by current international minima, and hence vary substantially across jurisdictions. A number of items are likely to become subject to much more severe treatment as a result.

The current proposal is that goodwill, minority interests in majority-owned subsidiaries, deferred tax assets and other "intangibles" such as mortgage servicing rights should all be deducted in full from core Tier 1. If agreed, the effect of this would be to reduce the banks' current levels of capital from which the new higher quantitative requirements would have to be met. The distribution of such impacts would be highly variable across firms and across markets. Many European firms would see a substantial reduction of their Tier 1 capital as calculated absent any revision of the proposals on exclusion of minority interests. Many US banks have substantial mortgage servicing rights that the proposals would require to be deducted as intangibles and full deduction of deferred tax assets would have a substantial effect on firms in many countries, again with wide variations. The fallout from the changes, depending on their final contours, could have appreciable to substantial impact on different banks, again with different effects in different countries.

Forward-Looking Provisioning

There is a proposal that banks should be required to determine provisions on the basis of recognition of "expected losses" over the life of a portfolio, as opposed to the current standard requiring recognition of "incurred losses". This would be complementary to the countercyclical capital buffers mentioned below. While the *BCBS* has put forth clear proposals for forward-looking provisions, their design is up to the international accounting standard setters. Intensive discussions on the accounting front are ongoing but it is not clear that the result will be what the *BCBS* wants. It is likely that the net result will be an improvement over the narrow interpretation of "incurred loss" (i.e., banks will be able to take provisions sooner, with somewhat less volatility) but there remains a danger that the US and international standard-setters will not agree on a common approach, which will at the least make comparison of major banks more difficult.

Countercyclical Capital Buffers

The current proposal has two very general provisions for banks to hold capital buffers above the regulatory minimum for Tier 1 capital. One is a "fixed" buffer, which would be determined by the supervisor and maintained through the cycle, to be drawn down at times of stress (with "capital conservation" limitations on dividends, share buy-backs and discretionary employee bonuses when a bank is below a buffer range determined by the regulator). In common with the rest of the package, the fixed capital buffers have not yet been calibrated. A tentative working assumption is that the buffer could amount to an additional 1% on total capital. There is also the risk that this could—contrary to the stated expectations of regulators—become a permanent buffer throughout the cycle.

There is a further "macro prudential" buffer proposal whereby an additional variable buffer would be established by reference to macroeconomic conditions, by means to be determined. Such a regime would be explicitly designed to curtail "excessive credit growth". No specifics have been provided on how this would work, but the general idea

would be to give discretion to ratchet up capital requirements if the judgment of the official sector is that credit is expanding too rapidly or terms are becoming too lax.

Leverage Ratio

There are three issues: how would the leverage ratio be calculated; at what level the ratio requirement would be set; and whether it would be mandatory regulatory requirement or a point of supervisory evaluation.

Current proposals include a measure based on *gross* exposure. On current proposals, the leverage ratio would be calculated on a very strict basis (in terms of the non allowance of credit risk mitigants, full value for written derivatives, and the treatment of off balance sheet items). If the current proposals disallowing netting and credit-risk mitigation, treatment of derivatives, and sweeping in wide ranges of off-balance-sheet transactions were maintained, stated exposures would be highly inflated as compared to (net) economic exposures as banks (and regulators) have traditionally analyzed them. Where they exist, leverage ratios have always been determined on a net basis (note: the Senate and House versions of the US financial reform bill includes provisions for the calculation of the leverage ratio that do not seem to take cognizance of the Basel proposals, which may be expected to complicate negotiation of the final accord)

The level at which the ratio is set—and at which it therefore could in principle become the binding constraint—is equally critical, especially of course if the radical gross calculation is maintained. The effect on banks' balance sheets could be significant, all the more so, of course, if a conservative ratio such as the conditional ratio that regulators could systemically important firms in the House version of the US reform bill (15:1) were adopted.

Official-sector pronouncements have often said that the leverage ratio, which by definition is not risk-adjusted, ought to be a "backup" measure to the risk-based capital accord; however, there appears to be a substantial risk that, depending on final definition and calibration, the leverage ratio will become the binding measure.

These negative effects would be all the more likely if, as proposed, the leverage ratio is required to "migrate" to become a fixed Pillar 1 requirement, rather than remaining subject to supervisory discretion in Pillar 2. Banks have advocated a Pillar 2 approach, pursuant to which the bank would assess its leverage among other risk metrics and its supervisors would evaluate the evolution of its leverage over time.

The effects on banks are thus hard to predict and will vary considerably depending on mix of business and mix of assets. This is all the more the case as it is not apparent that the leverage-ratio proposals have taken into account the effects of the liquidity requirements, which will likely push banks to more lower-yielding government obligations.

While there is sentiment in the *BCBS* to revise the proposal to put it on a net basis, it is impossible at present to predict what such a net ratio would look like, what its calibration would be, or what effects it would have; it is, however, clear that the Committee intends a significant constraint on leverage compared to the pre-crisis period.

Trading Book Capital
Specific changes to regulatory capital requirements for trading book activities have already been issued, based on the results of a QIS that the *BCBS* has undertaken, and are to be implemented at the end of 2010. Further adjustments are still required, but the new requirements will include:

- An **incremental risk charge**—reflecting the risk that a trading counterparty will default;

- Punitive provisions on complex securitizations;

- A charge for **credit migration risk**—reflecting losses potentially arising from internal or external ratings changes; and

- Additional **VaR calculations** to include inputs taken from periods of significant market stress ("Stress VaR" as well as the current VaR requirements).

The effects of these measures will vary widely from bank to bank but early estimates are that, on an industry wide basis, regulatory capital supporting trading activities could increase by three times or more.

Counterparty Risk
This is the risk that a counterparty defaults on a derivative contract prior to maturity. The capital charge is intended to cover effective potential exposure to a counterparty in the future, estimated using data that takes account of period of past stress. These estimates will also be subject to add-ons to cover risks that third party guarantors may be unable to meet their obligations. These proposals, if maintained, would pose significant methodological challenges, which the *BCBS* has said it would address. Present proposals would, however, have very substantial effects on trading firms.

Liquidity
Current proposals are for two binding ratios:

- A **Liquidity Coverage Ratio (LCR)** would specify the quantity of high quality liquid assets that banks would need to hold to ensure that they could survive short acute stress, reflected in exceptional net cash outflows over a 30 day period.

- A **Net Stable Funding Ratio (NSFR)** is intended to ensure that firms manage mismatches in funding profiles conservatively over longer time horizons, discouraging reliance on shorter-term wholesale funding. As such it imposes a number of requirements upon banks' structural long term funding, including detailed behavioral assumptions for client business. The NSFR requires a one year buffer against a scenario of moderate though significant stress.

The requirements as currently drafted are extremely strict—in terms of both the calibration of the pressures on firms' likely liquidity needs and the assets eligible to be counted as liquid. It will certainly have effects on both short-term and medium-term markets and also change the market among banks for other banks paper, which is generally treated less than favorably. Finally, it will increase competition for retail assets, which are treated as a more stable source of funding (perhaps undermining the basis of the assumption of deposit "stickiness" in the process).

The assumption is that such requirements would raise banks' cash holdings significantly. Insofar as the proposals push banks toward lower-yielding "safer" government obligations (which may not look as safe today as they did in December), require more expensive, longer-term funding, and will have substantial but unpredictable effects on funding markets and markets for bank paper, it would necessarily have a substantial effect on banks' costs, and on their appetite for various types of assets, generally lowering their ability to provide their traditional intermediation function.

Category 2 Measures

"Surcharges" for Systemically Important Firms

A separate sub group of the *BCBS* is currently considering whether firms judged to be systemically relevant should be required to hold additional regulatory capital, and additional liquidity, to reduce the probability of their default to a level below that of non-systemic banks. There are currently no firm proposals though proposals are expected after the July *BCBS* meeting. Even if proposals do emerge, there is no indication of the likely timing of implementation. There are proposals in the US and other national reform packages that would give micro prudential regulators and perhaps also new macro prudential authorities the power to impose such additional requirements. Other parts of the Basel proposal also suggest that there may be scope to impose less-favorable risk-weighting and liquidity treatment on large institutions, with clear implications for the basis on which they are able to do business.

As a working assumption, however, it might be postulated that the type of capital and liquidity surcharges envisioned could amount to an average of 1.5% to 2.5% on the minimum capital requirements of the 30 to 40 largest global banks.

Limits on the Scope of Banks' Activities

There are a number of proposals for limiting the scope of banks' activities. These include the 'Volcker plan' for preventing deposit taking institutions from undertaking proprietary trading or participating in hedge funds, private equity, together with a variety of other 'narrow banking' proposals[31]. These ideas have been spelled out with some clarity in the context of the proposed US legislation—a version is included in the US Senate's bill and a more aggressive amendment that was not adopted by the Senate is still being promoted through the conference process. There is a reasonable chance of final adoption, at least in the US. Such ideas do not however command global support—neither is there any realistic prospect of this. In the event of any of them being adopted, the macro economic implications could be considerable—over a considerable time scale. The ability of affected banks to extend credit (in all its forms) would be reduced and regulatory arbitrage would inevitably result in a reconfiguration of financial intermediation. The macro economic effects would be substantial but are difficult to quantify at present.

In addition, the Volcker plan in the US would put an additional cap on the size that any bank group could attain in the US, and there has been discussion of more radical plans to limit bank size and market share, though the latter do not appear to be likely to pass at this writing.

Category 3 Measures

Limits on Banks' Geographic Reach

These include proposals to require banks to limit their overseas activities, possibly through requirements that they operate through subsidiaries, or to hold substantial amounts of capital or liquidity in local markets regardless of form of organization. Here too, plans have not been fully articulated and the subsidiarization idea in particular could have modest effects or large ones depending on how it is configured. In principle, heavy handed approaches could weaken global trade (and global business more generally) and slow development in emerging markets. Macro economic effects could, in consequence, be substantial but they are difficult to quantify at present.

Separation of Derivatives

A provision in the US Senate version of the US reform bill would also require any group that includes a bank taking insured deposits to divest or fence-off all derivatives activities. This would have a substantial effect on the profitability of banks that are heavily involved in derivatives businesses, and on derivatives markets. This point is expected to be hotly debated in the conference process leading up to a final law. There is no global consensus about the appropriateness of such a measure and little prospect that it would be adopted more widely.

[31] See Kay (2009a) and (2009b).

Recovery and Resolution Plans

There has been extensive debate about these measures and it is highly likely that some version will be introduced as a matter of general norms and national legislation. While the measures are not yet finalized in terms of an international standard, supervisors in several countries have already conducted discussions of such plans with their banks, and are requiring work on the lines discussed below. The ultimate cost implications will depend critically on the model adopted, how aggressively supervisors interpret the requirements, and the tax implications of required changes.

- **Recovery** plans are intended to allow the institution to continue as a going concern in the event of financial distress, and return to financial health. They will typically involve strengthening liquidity and capital and curtailing—or divesting—parts of the business.

- **Resolution** plans are about making provision for an institution to fail in a way which does not create systemic risk and require it to be rescued using public funds.

Putting such plans into place entails three types of cost. Putting in place the elements of the plan itself – making improvements to 'knowing your business', responding to the information needs of regulators and colleges involve some cost, which would range from minor to relatively material depending on what ongoing information requirements are imposed. To the extent that firms are then obliged to make changes to the business—to simplify structures, develop new IT and reporting, or to put in place additional assured sources of liquidity or capital, this will involve significant additional costs, including higher tax burdens, on the institutions concerned.

The third, and probably most substantial, set of costs arises from the resolution or winding down of failed institutions. Such costs may arise from a variety of sources, including the need for working capital or the costs associated with transferring systemically important activities to a bridge institution. There is general agreement (including from the industry) that such costs should not fall to taxpayers and that the industry should pay. Much current debate focuses on whether these costs should be met from resolution funds set up in advance, or by means of recovering costs from the financial sector following resolution.

This has become a major political issue in the US, but it appears that the ultimate financial reform law might include an ex-post approach. The balance of opinion within the industry is also for an *ex-post* approach (though this view is not universally held). An ex-ante fund would in effect constitute an additional tax on the industry, regardless of the basis of assessment. The IMF has recently proposed a wider array of tax ideas, discussed below.

Taxes on Banks

The IMF recently proposed two broad types of taxes on financial institutions.[32]

- A 'financial stability contribution' to meet the costs of support for the financial sector. This would be imposed initially on a flat rate—but subsequently on a risk based—basis.

- A 'financial activities tax' which would be levied on institutions' profits and/or remuneration.

It remains unclear whether the proceeds of such taxes would go to general tax revenue or form part of an ex ante fund to finance future bank resolutions. The IMF found no compelling arguments for a financial transactions tax (or 'Tobin' tax to be paid on specific types of financial transactions).

There is at present no consensus regarding the desirability of any specific new tax on financial institutions, let alone the form this might take. Meanwhile a number of national measures have been implemented or proposed.

- The proposed 'Obama levy' is for a fee totally 0.15% of covered liabilities defined as total assets less Tier 1 capital less FDIC insured deposits. Although ostensibly designed to repay TARP costs to the taxpayer, it has also been described as a charge on an implicit guarantee for banks with wholesale funding (thus perpetuating the idea of 'too big to fail') and as a measure to discourage leverage through wholesale market funding. This provision was not included in the Senate financial reform proposal but is still under active legislative consideration.

- Taxes on bankers' bonuses. Both the UK and France have announced plans for one-off taxes on bank bonuses. The UK measure, which was proposed as a one-off, imposes a 50% tax on bonuses in excess of £25000 and was expected to raise around £550mn.

- The new UK government has in the past proposed a tax on banks amounting to around £ 1bn per annum which would be paid into general taxes.

[32] See IMF (2010b).

Chapter 3

Impact on the United States Economy

Introduction and Summary

- The US banking system has adjusted rapidly since the onset of the phase of financial stress in the middle of 2007.

- The crisis of 2008-09 produced a substantial increase in both liquidity and capital ratios of the US banking system. In both cases, these sharp increases have been driven not only by policy steps such as the Supervisory Capital Assessment Program (SCAP) and the Fed's extraordinary liquidity provision but also by banks' desire to cope with market pressures and position themselves for likely regulatory tightening.

- In comparing two forward-looking scenarios—one with ten specific aspects of regulatory change and a base scenario—we have to make a series of assumptions. Although we assume that banks are able to run lower capital and liquidity ratios in our base scenario relative to our reform scenario, it would nonetheless involve banks making dramatic changes in their behavior and risk management practices that reduce systemic risk.

- Through a variety of channels, reform measures would be passed on to bank borrowers in the form of a higher lending rate. All other things equal, this dampens the demand for bank credit, overall (nominal) credit, which then affects nominal GDP, real GDP and employment.

- The imposition of tighter regulatory controls over the next five years raises core Tier 1 capital requirements for US banks by about $250 billion by 2015. This, and a variety of other changes in funding costs, would lead to an increase in bank lending rates of about 193 basis points by 2014.

- As a result, the path of real GDP would be lower than in a scenario of no regulatory change, with the negative impact rising fastest in the next five years when the economy is struggling to resume a solid growth against the headwinds of a fiscal policy reversal. By 2015, the downward deviation would be about 2.6%.

- The loss in jobs in the regulatory change scenario (relative to the base) is about 4.6 million by 2015. This slower recovery in employment and output can be viewed as

a significant price to pay for a more heavily-regulated and arguably more stable system.

- Given that bank intermediation accounts for less than one quarter of total credit intermediation in the US, the macroeconomic impact of bank regulatory change hinges critically on the ability of the non-bank financial sector to substitute for banks in the credit intermediation process.

- Among the important constraints on the non-bank sector to do so, the most significant include the very limited potential for growth in the assets of government-sponsored financial enterprises, wholesale market funded finance companies, and securitization activity. High dependency on banks of small and medium sized businesses, which typically create 70 % of new jobs, presents another key issue.

The Starting Point: Rapid Adjustment Achieved

The US banking system has adjusted rapidly since the onset of the phase of financial stress in the middle of 2007 (Table 5). Most notably, there has been a significant decline in the number of banks, with a total of FDIC insured banks falling by 511 in the two and half years after June 2007. Whereas shrinkage of the number of banks has been a standard feature of the US landscape for many years, what was most striking about 2008 and, especially, 2009 was the number of banks that failed, as distinct from being merged. A further 57 banks have failed so far in 2010[33].

Table 5
The U.S. Banking System in Summary

	Jun 07	Dec 07	Dec 08	Dec 09
Number of Banks	7350	7283	7086	6839
Bank Failures (*total over previous 12 months*)	1	3	25	140
Total Assets				
FDIC Data (*$ trillion*)	10.411	11.176	12.309	11.846
%oya	8.4	10.7	10.1	-3.8
Federal Reserve Data (*$ trillion*)	10.07	10.786	12.282	11.681
%oya	8.9	10.9	13.9	-4.9
Risk-Weighted Assets (RWA, *$ trillion*)	8.121	8.606	9.021	8.736
%oya	11.0	10.8	4.8	-3.2
Capital Ratios (*all expressed as % of RWA*)				
Regulatory Capital	12.2	12.2	12.7	14.2
Tier 1 Capital	9.6	9.4	9.7	11.4
Core Tier 1 Capital	8.2	8.3	8.4	10.5
Liquid Asset Ratio	14.4	12.8	17.3	19.3
Share of Banks in Credit Intermediation (*%*)	23.6	24.0	24.2	23.6

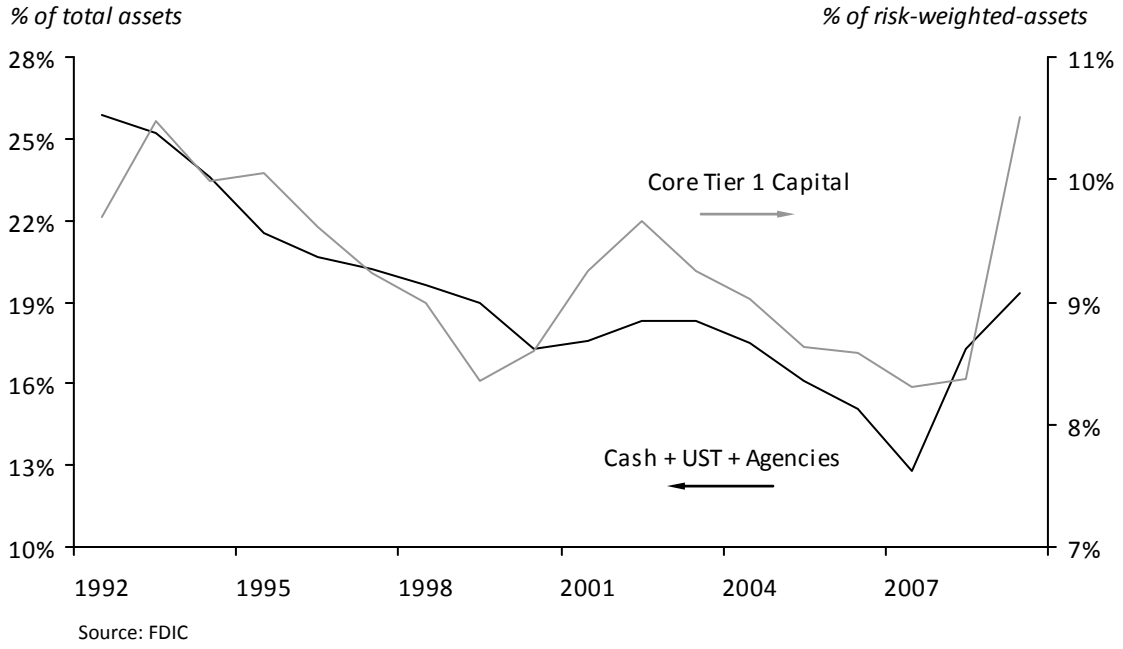
Sources: Federal Reserve, FDIC

[33] Through April 25th, 2010 (see http://www.fdic.gov/bank/individual/failed/banklist.html).

There has also been a dramatic increase in liquidity and capital ratios (Chart 13). We have defined a (narrow) liquid asset ratio, consisting of banks' balances at the Federal Reserve and banks' holdings of Treasury debt relative to total assets. This ratio rose sharply in the past two years, from 12.8 percent, to 19.3 percent. In large part, this was because of the Federal Reserve's monetary policy which left banks with substantial excess reserves (about $1 trillion, or 8.5 percent of total assets). Regulatory capital ratios have risen by about 2 percentage points of risk-weighted assets in the past two years, with the rise concentrated on core Tier 1 equity (or tangible common equity).

Chart 13

U.S. Banks' Liquid Asset and Core Tier 1 Capital Ratios



Source: FDIC

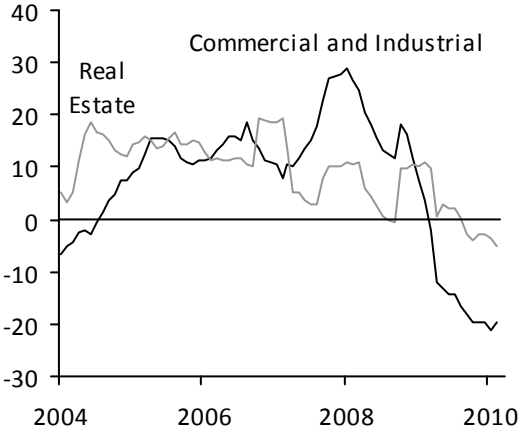
Part of the increase in capital ratios will have been driven by the prospects of regulatory reform as well as the strictures of the SCAP. Some also reflects an increase in market pressures, with banks responding to systemic solvency concerns by building up buffers in the midst of the recession.

Total banking system assets have actually risen (on both an unadjusted and a risk-weighted basis) since the onset on the crisis in 2007Q3. In part this is because of the need by banks to re-intermediate credit back on to their balance sheets, especially in the second half of 2007 and 2008. Most measures of bank credit have been falling for the past year or so, however (Charts 14 and 15).

Chart 14

Trends in U.S. Bank Lending to Businesses

% change over latest 6 months, saar

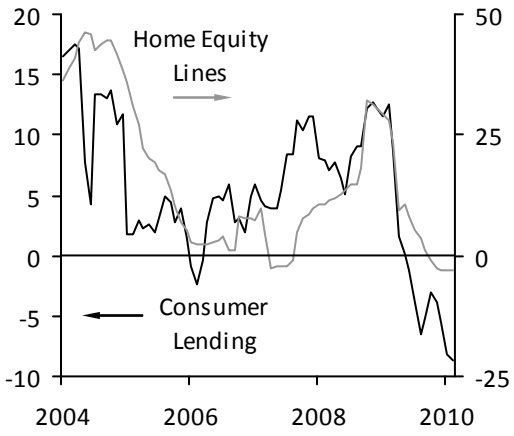


Source: Federal Reserve

Chart 15

Trends in U.S. Bank Lending to Consumers

% change over latest 6m, saar (both scales)



Modeling Regulatory Change: Anticipation versus Market Discipline

In modeling the impact of regulatory change on the economy, we have created a simple spreadsheet model and used it to make two detailed projections of the US banking system and the economy: one with reform and one without. We interpret the difference between the two scenarios as the "cumulative impact".

In our model, the detail of the banking system is more extensive than the detail of the economy, so our economic results are best interpreted as broadly indicative of trends, rather than precise estimates. The US model, together with detailed results of each scenario, is presented in the appendix to this Chapter, while the generic description of the IIF models is given in the appendix to Chapter 1.

The specifics on the regulatory change scenario and its implications for the US banking and financial system and economy and reviewed in the next two sections, but it is important to note that the base scenario of "no change" involves, in itself, important assumptions of change from the current situation.

As noted above, the crisis of 2008-09 produced a substantial increase in both liquidity and capital ratios of the US banking systems. In both cases, these sharp increases appear to have been driven in part by a desire on the part of banks to position themselves as "ultra-safe", so as to reassure regulators, supervisors, equity investors, wholesale funders and depositors. From a regulatory standpoint, the push for safety was carried out through the enforcement of the Supervisory Capital Assessment Program (SCAP) by the Federal Reserve, the successful implementation of which represented an important

turning point in the financial crisis[34]. The capital increases appear also to have been driven in part by a desire to anticipate, and thus position for, higher regulatory capital and liquidity requirements[35]. Banks' liquidity positions have been boosted by the $1 trillion of excess reserves that were put into the system by the Federal Reserve. These are projected to be run down to more normal levels in both scenarios.

Specifics of Regulatory Change Scenario[36]

In our quantitative work to date, we have focused on modeling those measures which have both a high level of clarity (albeit so far unquantified) and likelihood of occurrence (see Chapter 2). We have also focused on the Basel III proposals (see Chapter 2), which can be put into our framework in a relatively straightforward manner. In the light of the recent stepped up effort to pass US-specific reform legislation, we have endeavored to capture the impact of these additional measures, although our framework is not well-positioned to capture some of the most radical proposals, including those to limit bank size and severely restrict use of derivatives.

In assessing the cumulative effects of regulatory change on the US economy, our specific assumptions can be broken into two groups. The first is the changes that are part of the globally-coordinated efforts through the *BCBS*:

1) *An increase in trading book capital at the end of 2010*. Our estimate is that the commercial banking system held about $751 billion in trading book assets at the end of 2009. This was already well down from a peak of $829 billion at the end of 2008, and we expect this decline to continue through 2010, in large part in anticipation of the increase in the capital charges against holding these assets. Based on industry estimates, we project the capital charge levied against these holdings to rise by about three fold, which we capture by raising the average risk weighting assigned to such trading book securities from 10% to 30% for securities of financial firms held in the trading book), and from 25% to 75% for securities of non-financial firms.
2) *A two percentage point increase in the minimum Tier 1 and overall regulatory capital ratios, to 6% and 10%, respectively, to take place in 2012*. If this change were enacted today, then the increase would have little immediate direct impact

[34] See http://www.federalreserve.gov/bankinforeg/bcreg20090507a1.pdf

[35] These two effects are probably related, as market expectations of what banks should do with regard to liquidity and, especially, capital are almost certainly shaped by an expectation of conditions that regulators are expected to set for the future.

[36] This section sets out working assumptions about regulatory developments used in the analysis. Given the number of aspects of regulatory reform which are yet to be finalized, arbitrary decisions needed to be made about what assumptions to be used. These are not predictions or expectations. In addition, as in any broad economic analysis, some of the assumptions have had to be somewhat simplified. The Institute has provided detailed comments to the Basel Committee about numerous specific issues raised by its December 2009 consultative documents on capital and liquidity.

on US banks, since they currently hold capital (on both definitions) well in excess of BIS regulatory minima (at the end of 2009, the ratios were 10.5% and 14.2%, respectively). More at issue is what to assume about the buffer over the minimum that would be required by the national authorities in the two scenarios. As far as the "regulatory change" scenario is concerned, this issue is covered in the discussion of counter-cyclical buffers (see below). For the base scenario, however, we assume that US regulators maintain about the same average buffers in 2011-20 as prevailed from 1992-2008 (these buffers were 4.5 percentage points on total and 5.9 percentage points on Tier 1 capital). This would allow the core Tier 1 capital ratio to fall steadily from 12.5% at the end of 2010 to 11.6% in 2015-16.

3) *Quality of capital*. The greater emphasis on "core" Tier 1 equity (TCE) versus total Tier 1 would not greatly stress US banks, given their holdings of TCE amounted to 92% of total Tier 1 capital at the end of 2009. Redefinition effects are more of an issue (i.e. items currently counted as part of Tier 1 capital will no longer be eligible for such treatment under new regulations). Based on estimates from brokers' reports, we anticipate that about $120 billion of what is currently eligible to be counted as Tier 1 capital is re-classified (as Tier 2 capital) over a 3 year horizon from 2012 to 2014 (i.e. $40 billion per year).
4) *Countercyclical buffers*. We project a countercyclical buffer, in the form of a higher Tier 1 capital buffer, to be imposed as the business cycle unfolds. In the absence of a clear guidance from the BCBS on this matter, we have assumed that this would take the form of an additional 1 percentage point increase in the Tier 1 minimum for the expected "central phase" of the next business cycle, which we would interpret as years 3 through years 6 of the expansion. In the upcoming cycle, this period would be 2012 through 2015. This period would correspond to the phase 2004-2007 in the last cycle, which is clearly the phase when, retrospectively, it would have been desirable to impose some brakes on the expansion phase of the credit cycle. Of course, it is always easy to see the strong phase of a business cycle in retrospect, and far more challenging to be so decisive on an *ex ante* basis. Importantly, we assume that that these leads to an equivalent increase in observed capital ratios during this period of the expansion.
5) *Higher holdings of liquid assets as a result of the Liquidity Coverage Ratio (LCR)*. The Liquidity Coverage Ratio will require that banks hold sufficient liquid assets to ensure that they can survive a period of extreme stress. In our framework, we set the overall liquid asset ratio, so at to ensure that banks comfortably meet the LCR through the projection horizon in the regulatory change scenario. In the base scenario, the LCR is not a binding constraint. Specifically, in that scenario banks target a stable liquid asset ratio through the next five years (2010-2014), followed by a steady decline back to 15% thereafter. For the regulatory reform scenario, we project the liquid asset ratio to be increased to 22% in 2012, maintained at that level through 2013, and trimmed steadily back to 18% thereafter.

6) *A greater reliance on longer-term over short-term wholesale funding, as a result of the Net Stable Funding Ratio (NSFR)*. The new liquidity provisions will also apply on the liabilities' side of banks' balance sheets. We assume that the NSFR will be introduced in 2012, and that this will have the effect (in the 2010-2012 period) of shifting the split of banks' wholesale funding from short-term to long term, and maintaining it there through the forecast horizon.

The second set of changes is those that are US-specific, at least currently (although US-specific changes are apt to become part of a new global standard and spread to other countries). These proposals are currently developing in the Financial Reform Bill, different versions of which have now passed the House and the Senate[37]. This will now go to Conference (a joint committee of both parts of the legislature) for reconciliation. This process could be completed by July 4th, 2010. There are 118 new regulations in the Senate bill, so it is impossible to capture the likely myriad of changes embodied in the new legislation fully in our framework. Nonetheless, we believe that the first two of the points below incorporate some of the effects of the legislation. The other two changes reflect what we believe to be plausible other developments (part from the Financial Reform Bill) that need consideration:

7) *Higher cost of wholesale bank funding*. While there are considerable uncertainties as to the final shape of the legislation, one key aim is to increase resolution powers of the FDIC. In principle, financial support programs for institutions suffering any kind of "run" would be forbidden, and a large financial institution in difficulty—or perceived to be in difficulty—would be put in the hands of the FDIC and wound down in an "orderly" way. The main implication of this proposal would be to raise the cost of wholesale funding, since debt holders would now be far more vulnerable to losses resulting from disorderly financial market conditions, and would not enjoy the support provided by government guarantees in the 2008 crisis. This effect of raising the cost of wholesale market funding—the result of reduced *demand* for bank debt by investors—would come on top of the increased *supply* of long-term paper caused by the net stable funding rule. Our framework assumes that there is always some price at which investors will be willing to buy longer-term bank debt, so the increase in the supply of such securities leads to an increase in overall funding costs[38]. In our projections, we have assumed an added cost of long-term bank wholesale funding of 200 basis points. It is possible, of course, that such marginal wholesale funding might not be available (at any reasonable prices), in which case the banking system would be forced to cut its assets more aggressively than our projections envisage.
8) *Lower growth in credit from non-bank sources*. There are many other provisions of the legislation, but many of them center on reducing the ability of banks to

[37] See http://banking.senate.gov/public/_files/HR_4173_Senate_passed_as_amended.pdf
[38] A number of IIF members have questioned this assumption, pointing out that there may be no price at which all wholesale debt can be sold. This would imply the need for a more explicit deleveraging by banks.

engage in securities sales and trading activities, including severe limits on banks abilities to engage in derivatives business. While there is no straightforward way to model the impact of these measures within our framework, we believe that it is reasonable that the combination of these measures would be sufficient to raise the cost of non-bank credit intermediation sufficiently to trim the growth in non-bank credit to be one percentage point lower than in a "no change" scenario between 2011-15. Given the importance of non-bank credit intermediation to the US economy, this slower rate of growth in non-bank credit cumulates to a significant restraint on the economy.

9) *Financial Crisis Responsibility Fee (FCRF)*. In January 2010, President Obama proposed a fee on all banks and finance companies with more than $50 billion in assets in order to recoup the costs of the TARP program[39]. According to industry estimates, annual revenues from the tax could amount to about $11 billion[40]. While the universe of firms covered by the tax is not quite the same as the banking sector in our model, the pre-tax net income of banks in our model averages $265 billion in 2010-11. If enacted, the FCRF would thus amount to an additional marginal tax rate of about 10 percent. We assume that this tax is imposed as a one-off levy in 2011, but this tax could easily be made permanent. Indeed, one provision of the original Senate legislation was the creation of a $50 billion fund to meet the cost of possible future financial crises. This did not make it into the final bill. The House bill creates a pre-funded Dissolution Fund of $150 billion paid for by taxes on banks. While this is also unlikely to make it into final legislation, there is growing momentum to make the FCRF permanent, rather than one-off. If this were done, it would obviously add to our estimates of the GDP growth and employment effects of regulatory change.
10) *Greater pressure on compensation*. We assume that the regulatory change scenario will lead to greater pressure on banks to restrain employee compensation. In our model, employee compensation is part of the "non-interest cost" component of the profit and loss and account. In 2009, overall non-interest costs were $353 billion. In our base scenario, we assume that this component grows in line with nominal GDP. In our regulatory change scenario, we assume that non-interest costs rise by 2.5 percentage points less than nominal GDP between 2011-16 (given that employee compensation is only a part of this cost line, the implied decline in employee compensation would be more significant).

Our regulatory change scenario does not capture all of the proposals that could be part of the financial reform legislation. For example, when President Obama proposed the "Volcker Rule" in January (a ban on banks trading for their own book or owning hedge funds), he also suggested that there should be limits imposed on the overall size of banks and the degree of concentration in the banking industry[41]. Presumably, this could

[39] See http://www.ustreas.gov/press/releases/tg506.htm. Note that all banks with assets in excess of $50 billion have repaid TARP related equity injections, with the Treasury registering a significant profit on these transactions.
[40] See Glionna and Crivelli (2010)
[41] See http://www.whitehouse.gov/the-press-office/remarks-president-financial-reform

be expressed in the form of limits on the share of overall wholesale funding. Such a "hard stop" (forcing banks to shed assets and wholesale liabilities) could be quite disruptive.

Our Results in Outline

In its simplest terms, the model operates through tighter regulatory requirements squeezing the banking sector's net interest margins. This squeeze is then passed on to borrowers in the form of a higher lending rate. All other things equal, this dampens the demand for bank credit, overall (nominal) credit, which then affects nominal GDP, real GDP and employment[42].

A comparison between the outcome for many key variables from both the banking sector and the economy is presented in Table 6 (below), which cover projections through 2020.

Not surprisingly, the main differential between the two scenarios opens up over the next 5 years, when the regulatory measures take hold. Over the first five years of the regulatory change scenario, real growth (and employment) is appreciably weaker and prices lower. Economic performance is more even later in the decade, in part because counter-cyclical buffers are reversed.

The imposition of tighter regulatory controls over the next five years, however, would act to raise core Tier 1 capital requirements for US banks by about $250 billion by 2015. Through an increase in what we call the shadow price of bank equity, this would lead to an increase in bank lending rates of about 193 basis points by 2014 (Chart 16).

This would contribute to a halving in the rate of growth of bank (and total) credit to the private sector over that time horizon. In turn, this would cumulate in the loss of about $860 billion of nominal GDP by 2014, after which time this nominal loss would continue to rise, albeit it more slowly (Chart 17). Note that this income loss is not absolute but *relative* (i.e. by 2014, nominal GDP is projected to be $860 billion *lower* than it would otherwise be).

[42] It should be noted that our model has no explicit feedback in (at least) one important area. We set the path of policy rates (and bond yields) exogenously, so this does not allow for the possibility that an easier Federal Reserve policy stance could offset some of the regulation-induced rise in bank lending rates. Of course, with Fed rates now close to zero (and unlikely to rise significantly in the quarters ahead), the scope for such a compensating monetary policy response is limited. Moreover, such an offsetting monetary ease (limiting the "headwinds" of regulatory reform) might well exacerbate other extremes.

Table 6
United States: Cumulative Effects Results

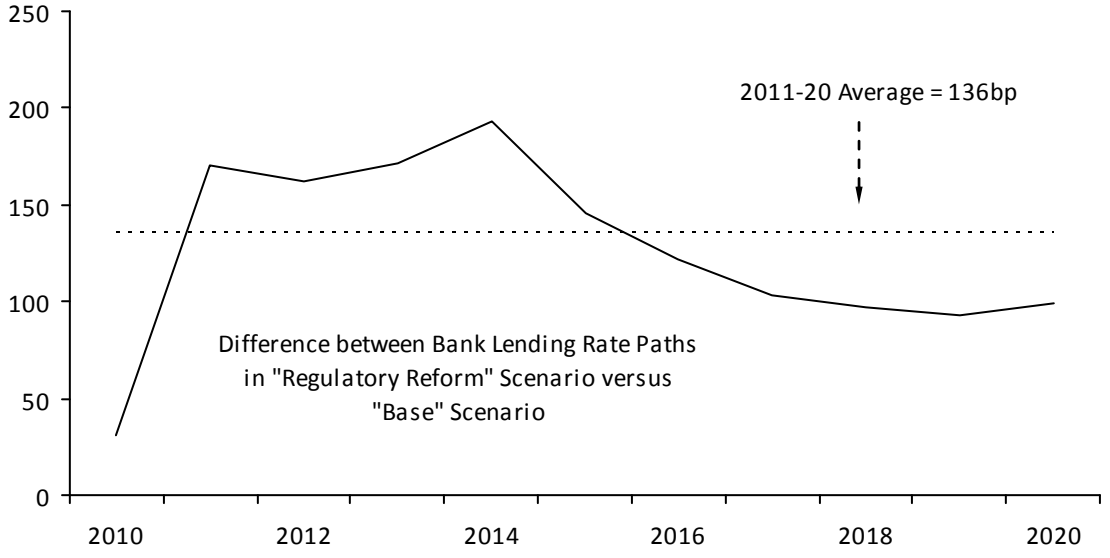
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	*Avg 2011-20*
Real GDP (2010 = 100)												
Base	100	102.7	105.2	108.1	110.6	113.6	116.7	119.5	122.5	125.6	128.8	
Regulatory change	100	101.4	103.4	105.8	107.7	110.7	113.8	116.5	119.5	122.4	125.3	
Difference (%)	0.0	-1.2	-1.7	-2.1	-2.6	-2.6	-2.5	-2.5	-2.5	-2.5	-2.7	
Real GDP (%y/y)												
Base	3.3	2.7	2.5	2.7	2.3	2.7	2.7	2.4	2.6	2.5	2.5	*2.6*
Regulatory change	3.0	1.4	2.0	2.4	1.8	2.7	2.8	2.4	2.5	2.5	2.3	*2.3*
GDP deflator (2010 = 100)												
Base	100	102.0	104.6	107.6	110.6	113.7	116.9	120.1	123.5	126.9	130.4	
Regulatory change	100	101.6	103.6	106.1	108.5	111.3	114.4	117.6	120.9	124.2	127.5	
GDP deflator (%y/y)												
Base	1.4	2.0	2.5	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.7	*2.7*
Regulatory change	1.4	1.6	2.0	2.4	2.3	2.6	2.8	2.8	2.8	2.7	2.7	*2.5*
Nominal GDP ($ trillion)												
Base	14.938	15.647	16.434	17.374	18.261	19.284	20.369	21.441	22.605	23.817	25.080	
Regulatory change	14.881	15.324	15.936	16.707	17.401	18.333	19.376	20.393	21.496	22.631	23.783	
Difference ($bn)	-56	-323	-498	-667	-860	-951	-993	-1048	-1109	-1186	-1297	
Employment (millions)												
Base	129.7	131.3	132.4	133.6	134.6	135.7	137.1	138.2	139.3	140.4	141.5	
Regulatory change	129.4	129.7	129.5	130.1	130.3	131.1	132.6	133.7	134.7	135.7	136.6	
Difference ('000)	-274	-1620	-2844	-3525	-4242	-4585	-4516	-4474	-4539	-4655	-4867	
Private sector credit (2010 = 100)												
Base	100	108.0	113.0	119.9	125.8	133.1	140.3	146.9	154.3	161.8	169.6	
Regulatory change	100	103.9	106.1	110.2	112.9	118.4	125.0	130.8	137.3	143.8	150.0	
Private sector credit growth (%y/y)												
Base	-0.9	8.0	4.7	6.1	4.9	5.9	5.4	4.7	5.0	4.9	4.8	*5.4*
Regulatory change	-2.1	3.9	2.1	3.8	2.5	4.9	5.5	4.7	5.0	4.7	4.3	*4.1*
Bank assets (%y/y)												
Base	-1.6	7.9	3.8	5.8	4.4	4.4	4.0	3.2	3.6	3.5	5.2	*4.6*
Regulatory change	-1.4	6.3	3.9	4.1	-1.4	5.4	4.1	5.2	3.5	5.2	4.7	*4.1*
Risk-weighted assets (%y/y)												
Base	-2.0	9.2	4.7	5.9	4.4	5.2	5.4	4.6	5.2	5.0	5.5	*5.5*
Regulatory change	-2.3	9.7	2.8	4.2	1.2	5.4	5.5	5.2	4.9	5.3	4.8	*4.9*
Bank credit growth to the private sector (%y/y)												
Base	-2.2	8.0	4.2	5.8	4.4	5.6	6.0	5.2	5.6	5.4	5.3	*5.6*
Regulatory change	-2.7	4.3	2.2	4.2	2.6	5.4	6.2	5.1	5.5	5.2	4.8	*4.5*
Core equity shadow price (percent)												
Base	19.0%	7.5%	10.0%	9.4%	10.2%	10.2%	10.4%	10.8%	11.2%	11.6%	12.4%	*10.4%*
Regulatory change	19.0%	12.9%	12.8%	12.3%	13.7%	12.1%	11.5%	11.6%	11.6%	12.0%	12.7%	*12.3%*
Real lending rate (percent)												
Base	3.7%	2.1%	2.4%	2.0%	2.6%	2.3%	2.0%	2.3%	2.1%	2.2%	2.2%	*2.2%*
Regulatory change	4.0%	3.8%	4.0%	3.7%	4.5%	3.7%	3.2%	3.4%	3.1%	3.1%	3.2%	*3.6%*
Difference (bps)	31	170	163	171	193	146	119	103	98	93	99	*136*
Regulatory capital ratio (% of RWA)												
Base	15.2%	13.8%	13.1%	12.5%	12.1%	11.6%	11.1%	10.6%	10.1%	9.6%	9.1%	*11.4%*
Regulatory change	16.5%	15.4%	15.9%	16.3%	16.9%	16.3%	15.7%	15.1%	14.6%	14.0%	13.6%	*15.4%*
Core Tier 1 Capital ($ billion)												
Base	918	918	918	935	953	970	986	1003	1018	1031	1045	
Regulatory change	1023	1068	1103	1164	1199	1217	1236	1254	1272	1288	1305	
Difference	105	150	185	229	246	247	249	252	254	257	260	
Core Tier 1 capital ratio (% of RWA)												
Base	11.2%	10.2%	9.8%	9.4%	9.2%	8.9%	8.6%	8.3%	8.0%	7.7%	7.4%	*8.7%*
Regulatory change	12.5%	11.9%	11.9%	12.1%	12.3%	11.8%	11.4%	11.0%	10.6%	10.2%	9.9%	*11.3%*
Return on bank equity (%)												
Base	15.5%	11.4%	12.9%	12.7%	13.8%	13.0%	12.3%	12.2%	11.4%	9.8%	10.3%	*12.0%*
Regulatory change	15.3%	10.5%	11.2%	10.7%	11.9%	10.8%	10.6%	10.5%	9.9%	8.9%	9.2%	*10.4%*

Sources: IIF Estimates

Chart 16

United States: Change in Real Lending Rate to Private Sector Borrowers

basis points

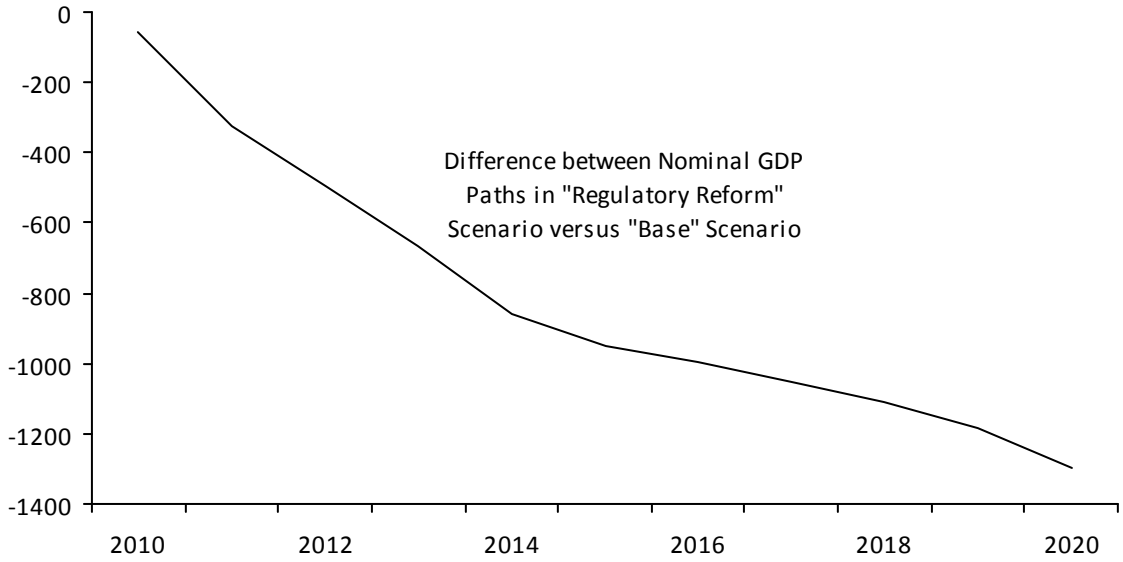


Source: IIF Estimates

Chart 17

Estimated "Cost" of Regulatory Reform on U.S. Economy

$ billion



Source: IIF Estimates

The employment implications of this loss in income are driven by real GDP, which is less severely hit than nominal GDP, since inflation in the regulatory change scenario is weaker throughout. In part, this reflects lower nominal credit growth; in part, the higher

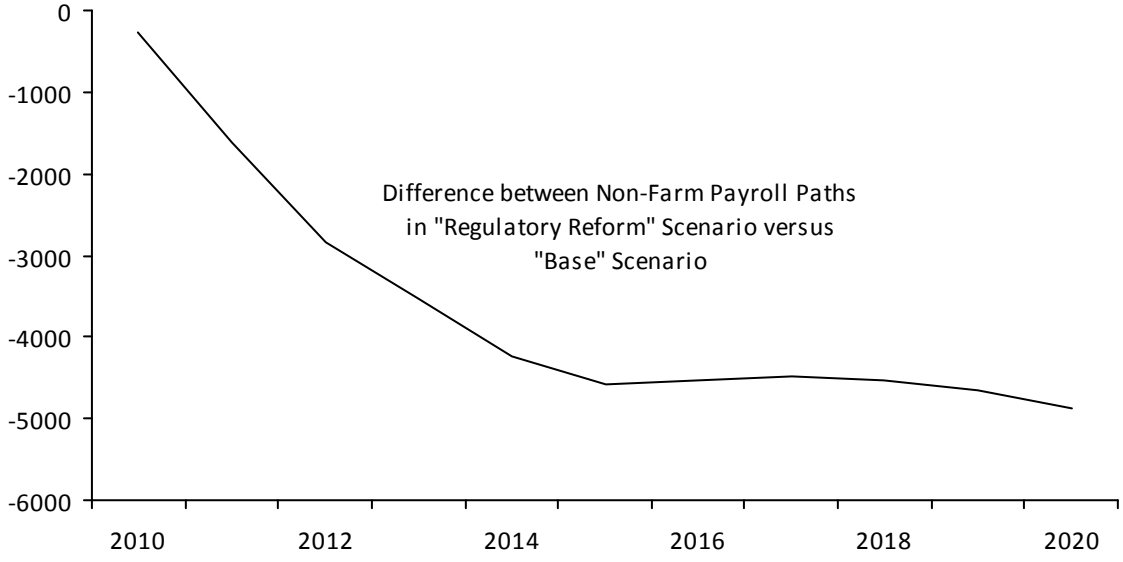
(negative) output gap. Once again, this is a relative not an absolute story. That said the relative loss in jobs under a regulatory change scenario is quite striking (and sustained; see Chart 18).

The most concerning development of the negative economic developments resulting from the regulatory change scenario is not just their scale, but their timing. The maximum hit comes in 2011-2014 when the tougher new regulatory policies are assumed to be imposed. This is the period, however, when the US (and global) economies are expected to be struggling to sustain a healthy recovery from the damage of the deep recession of 2008-09. Particularly concerning are the risks associated with deflation, and high and rising budget deficits. A scenario that contributes to weaker nominal growth and subdued leverage in the private sector would seem, at face value, to be one that could add to the downward pressures on the price level and upward pressures on government debt.

Chart 18

U.S. Employment Implications of Regulatory Reform

thousands



Source: IIF Estimates

Non-Bank Credit Intermediation: The "Spare Tire" Theory

One critical issue shaping the macroeconomic impact of bank regulatory change is the ability of the non-bank financial sector to substitute for banks in the credit intermediation process. This is particularly important in the United States, where the share of bank intermediation (as measured by the proportion of total financial sector credit market instruments held by commercial banks) is less than one-quarter

(Chart 19). This share had been falling steadily between 1974 and 2004, but actually rose slightly between 2003Q4 and 2008Q4. It fell again through 2009, however.

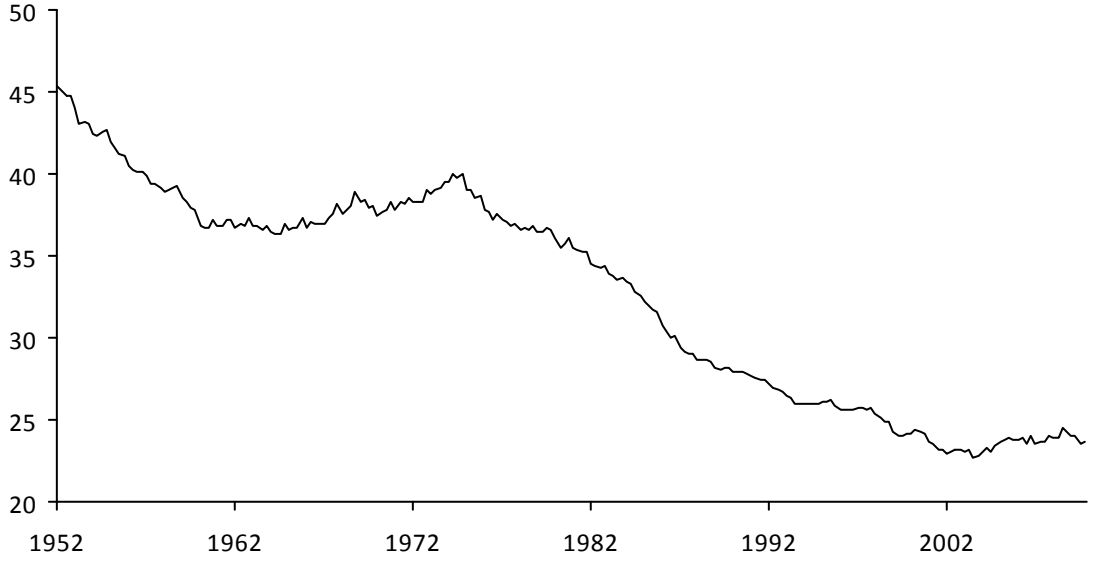
The ability of the non-bank sector to substitute for the bank sector at times of weakness was widely seen as a major strength of the US financial system, at least until recently. It was even given a name: the "Spare Tire" theory[43].

These "spare tire" effects became most evident at two points between 1997 and 2003 (Chart 20). During the Asian-Russian-LTCM crisis in 1998-99, bank credit slowed, but this effect was offset by acceleration in credit growth by non-bank entities. Indeed, it was at this time that the "spare tire" phrase was conceived, in part to highlight the diversity of credit supply sources in the United States, as well as to underline why the financial crisis had been so traumatic to East Asian economies, since they had been over-dependent on large banking systems and, thus, vulnerable to the sudden downturn in the banking sector's fortunes[44].

Chart 19

Share of Credit Market Flows Intermediated by Banks

ratio of bank credit to total credit, percent



Source: Federal Reserve

The second episode was the recession and debt reduction phase of 2001-03, when a sharp dip in bank credit growth was offset by acceleration in credit from other sources.

[43] See Greenspan (1999) and (2005).

[44] In retrospect, such analysis looks less correct, since East Asia's traumas in 1997-98 in many ways mirror those experienced by Western financial systems following the collapse of Lehman Brothers in September 1998. In East Asia, a series of local, but relatively modest, financial excesses combined to produce a breakdown in trust in the financial system. The subsequent rush for liquidity and safety produced powerful ripples across the region, including significant pressures on even the strongest links (e.g., Hong Kong and Singapore)

Major corporate bankruptcies (especially Enron and WorldCom) did thus not have a devastating impact on the overall credit supply process, presumably helping dampen the depth and duration of the 2001 recession.

In both of these "spare tire" episodes, the bank credit expanded, at the margin, by less than non-bank credit. In both episodes, however, Government Sponsored Enterprises (GSEs) and Agency and GSE-insured mortgage pools contributed about one-third of total credit creation (Table 7). Outside these episodes, there were some phases during the period 1996-2002 that growth rates in bank lending and non-bank lending were positively correlated. But, for the period as a whole, there was essentially no correlation between the (year ago) growth rates of the two variables.

Table 7
Change in Credit in Two "Spare Tire" Phases
$ billion, unless stated

	1999Q2-1998Q2	2000Q4-2003Q4
Overall financial system	1814	5550
Banks	246	991
Contribution (%)	13.6%	17.9%
Non-bank	1523	4404
Contribution (%)	84.0%	79.3%
o/w GSE and Agencies	610	1608
Contribution (%)	33.6%	29.0%
ABS issuers	249	711
Money market funds	187	154
Finance companies	118	367
Contribution (%)	64.1%	51.2%
Others	361	1564
Contribution (%)	19.9%	28.2%
Memo: Federal Reserve	45	155
Contribution (%)	2.5%	2.8%

Sources: Federal Reserve, IIF Estimates

More recently, however, the view that bank and non-bank credit are offsetting alternatives has not held. Since 2003Q1, the positive correlation between the (year ago) growth in bank and non-bank credit has been a relatively high 84 percent. Significantly, the plunge in credit growth from non-bank sources preceded the drop in bank credit in the most recent downturn (Chart 20).

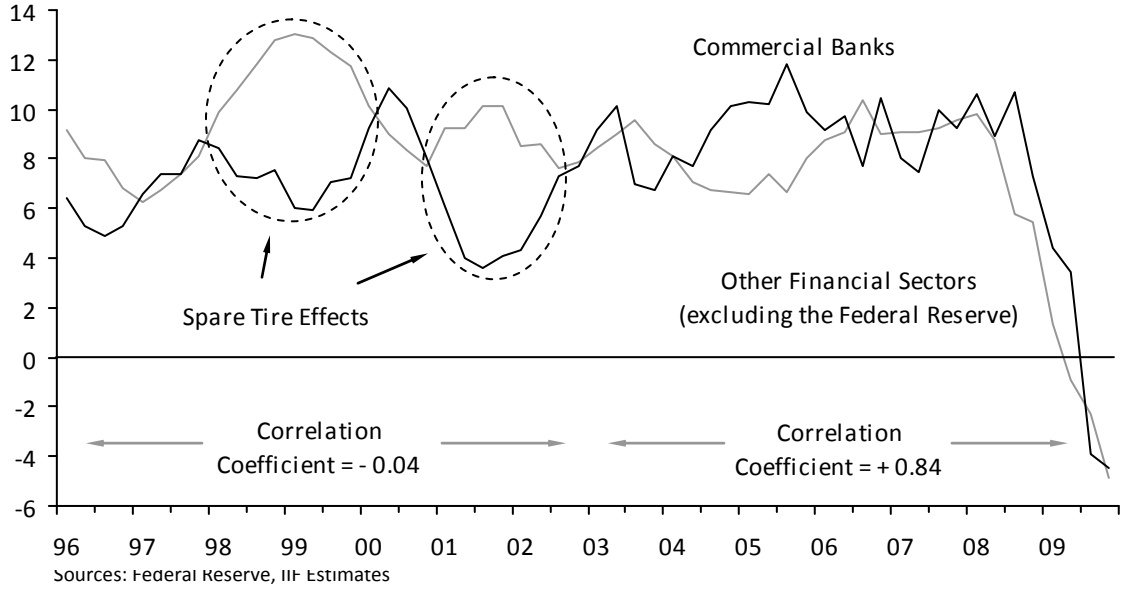
As has been well documented, some of the most buoyant forms of non-bank credit in the latest upswing came in the form of a rapid expansion of on and off balance sheet activity by the (housing-related) GSEs, as well as rapid growth in credit assets held issuers of asset backed securities (ABS) and wholesale market funded finance companies. These institutions had also been very supportive of overall credit growth during the "spare tire" episodes mentioned above (Table 7). In retrospect, however,

policy makers and market participants came away from the 1998-99 and, especially, the 2001-03 episodes with too sanguine a view towards the system stabilizing properties of the non-bank financial sector. In the latest downturn, it became a key source of, rather than protection against, financial instability.[45]

Chart 20

Credit Instruments Held by Domestic Financial Sector

percent change over a year ago



Sources: Federal Reserve, IIF Estimates

Although the overall decline in non-bank credit over the past year matched that of banks, the severity of the decline in some key components of non-bank credit over that time has been quite dramatic (Table 8). Savings banks, money market funds, ABS issuers, finance companies, broker-dealers and funding corporations all suffered double digit declines. Key stabilizing forces were GSEs, insurance companies and pension funds and, especially, mutual funds (excluding money market funds)[46].

This diversity in recent performance is a salutary reminder that the non-bank credit sector in the United States is far from a homogenous block. This makes projecting a plausible path for the sector over the years ahead quite challenging.

In constructing our two scenarios, we developed a model for aggregate non-bank credit growth whose main ingredient is the same factors that drive bank credit growth. In

[45] The same point seems relevant for credit default swaps (CDS), the markets for which handled their first major tests in the credit downturns of 1998-99 and, especially, 2001-03 (this included major corporate and sovereign bankrupcies). Having come through those tests with flying colors, policy makers and market participants were generally unfazed by the exponential growth in the CDS market after 2004.

[46] The growth of mutual funds relative to money market funds probably reflects the normalization of financial conditions as 2009 progressed, and investors re-allocated funds out of low yielding money funds and into higher-yielding bond funds.

addition (as noted above), we assumed that non-bank credit grows by a percentage point per year less in the regulatory change scenario relative to the base scenario. The resulting two paths (neither of which is strong) are shown in Chart 21.

Table 8
Total Credit Market Instruments Held in Financial Sector

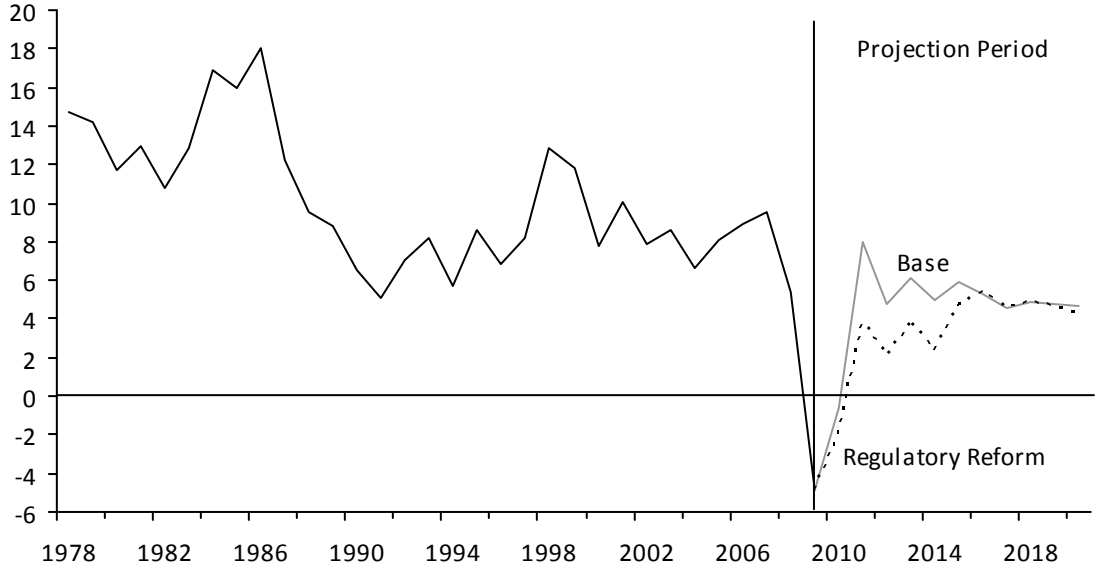
	Dec-09		Change since (%saar)	
	$ billion	% of total	Dec-08	Dec-06
Commercial banks	9.005	23.6	-4.5	3.8
Federal Reserve	1.988	5.2	101.6	36.7
Savings banks and credit unions	1.804	4.7	-10.6	-5.8
Insurance companies	3.883	10.2	4.3	2.4
Pension funds (public and private)	1.939	5.1	0.8	5.1
Money market funds	2.031	5.3	-24.1	9.2
Mutual & closed end funds & ETFs	2.896	7.6	17.5	10.9
GSE and GSE-backed pools	8.087	21.2	1.2	8.0
ABS issuers	3.333	8.7	-16.7	-6.5
Finance companies	1.550	4.1	-11.8	-5.1
Real estate investment trusts	0.172	0.5	-4.7	-13.5
Brokers and dealers	0.530	1.4	-26.2	-3.2
Funding corporations	0.875	2.3	-14.6	34.8
Total	38.092		-2.0	4.4
Memo: Excluding banks and Fed	27.100	71.1	-4.8	3.2

Source: Federal Reserve

Chart 21

Alternative Paths for U.S. Non-Bank Credit Growth

% December/December



Sources: Federal Reserve, IIF Estimates

As with banks, it is also difficult to determine the relative roles of changed behavior versus the fear of future regulation in shaping recent conservative behavior by some non-bank intermediaries.

In the case of non-bank financial intermediaries, however, there are two specific institutions that seem certain to shrink their balance sheets over coming years. First, the Federal Reserve (which is not part of our non-bank credit aggregate) will most likely endeavor to reduce its balance sheet back towards its pre-crisis size. This would imply a reduction of about $1 trillion. Second, likely GSE reform will be accompanied by an overall reduction in those institutions' aggregate balance sheets. Both of these balance sheet declines would be concentrated on one specific asset—mortgage backed securities. Other sectors may well continue to shrink (e.g., ABS issuers). For the overall non-bank aggregate to grow at anything like the rate of nominal GDP, therefore, we would need to see steady, significant growth in the assets of "healthy" non-bank credit intermediaries (e.g. mutual funds and insurance companies)[47].

There are two ways in which the regulatory reform agenda would likely restrain non-bank credit flows relative to a base scenario of no change:

- Most obviously, reforms are understandably geared to achieving a safer overall financial system, and a key part of this will be ensuring that no new "shadow" banking system will be created. In particular, this is liable to constrict the growth of money market funds, whose ability to engage in bank-like maturity transformation (e.g. by holding the commercial paper of ABS issuers) will be limited.
- There will be efforts to curtail the growth in off-balance activities of banks—primarily through the introduction of a leverage ratio, where the assets to be included in the numerator are likely to be off balance sheet positions measured on a gross notional basis[48]. This would likely lead to a sharp reduction in banks' off-balance sheet positions, which would probably spill-over not only on to their willingness to hold inventories of securities, since these would be more costly to hedge in a less liquid derivatives market. In turn, this could dampen financial intermediation through the bond market. Moreover, thinner derivatives markets

[47] Mutual funds and insurance companies will also be subject to additional regulatory requirements that will restrict their investment policies, in some cases significantly changing their roles in markets. Money-market funds in particular are already subject to new liquid-asset requirements that are substantially more conservative than before the crisis, generally requiring shorter-maturities and higher-quality assets. To some extent these changes run in the opposite direction to the liquidity changes for banks (generally requiring them to seek longer-maturity liabilities). While the market interaction of these changes is yet to be determined, it is important to keep in mind that these important market players will also be significantly affected when considering the markets for capital and funding in which banks will be operating (see Chapter 1 for more discussion).

[48] In the United States, banks have operated with a 20x liquidity ratio since the early 1990's. However, the current Basel proposals would radically change this ratio, which is calculated on a net, not gross, basis and disregards off-balance-sheet items (which in turn will be substantially changed by intervening regulatory and accounting changes).

might well make it more costly for non-banks to manage bond portfolios, directly reducing intermediation flows through this channel.

Distributional Issues: The Bank Dependency of Small and Medium Sized Firms

Our modeling work focuses on macro aggregates, treating the banking sector, the non-bank financial sector and the non-financial sector (businesses and households) as uniform blocks. In the real world, of course, each major sector is made up of many individual actors, be they firms or households.

Small businesses are more relatively dependent on bank financing than large businesses, and can only access capital markets indirectly through securitization[49]. The tightening in lending conditions for credit cards and small business loans will thus have no doubt acted as a significant restraint on small business activity in the past few quarters. A further tightening in bank credit conditions relative to those for non-bank credit would be liable to favor larger businesses relative to smaller businesses. It should be noted that small businesses account for the creation of 60 to 80 percent of net new jobs annually[50]. This makes it likely that our estimates for net job losses resulting from tighter lending conditions could well be too low, since they are based on broad macro aggregates and do not take these likely adverse compositional effects into account.

[49] See Mach, T.L. and Wolken, J.D. (2006).
[50] See Ou (2006).

Appendix: United States Data Sources

Type of Data	Sources
Balance Sheet	FDIC database of Statistics on Banking http://www2.fdic.gov/SDI/SOB/ Maturity structure of wholesale liabilities was determined based on a sample of top 20 commercial banks, ranked by asset size. Data retrieved via Bloomberg and Bankscope
Capital	FDIC database of Statistics on Banking http://www2.fdic.gov/SDI/SOB/
P&L Model	FDIC database of Statistics on Banking http://www2.fdic.gov/SDI/SOB/
Macroeconomic Data	Bureau of Economic Analysis Bureau of Labor Statistics Federal Reserve Statistical Release – Flow of Funds Accounts of the United States, March 2010 http://federalreserve.gov/releases/z1/Current/z1.pdf OECD Economic Outlook 86 database

United States: Base Scenario

$ billion		2005	2006	2007	2008	2009	Projection period 2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank Balance Sheet Model								*No new risk-weighting*										
Bank Assets		9040	10092	11176	12309	11846	11654		12578	13056	13814	14424	15056	15661	16168	16752	17337	18245
LIQ	Cash	400	433	482	1042	976	874	*0%*	880	849	829	793	753	783	808	838	867	912
GOV	Government bonds	1058	1088	950	1088	1311	1410	*0%*	1585	1710	1879	2034	2108	2036	1940	1843	1734	1825
LIQ/TA	Liquid asset ratio	16.1%	15.1%	12.8%	17.3%	19.3%	**19.6%**		**19.6%**	**19.6%**	**19.6%**	**19.6%**	**19.0%**	**18.0%**	**17.0%**	**16.0%**	**15.0%**	**15.0%**
IB	Domestic financial	132	92	86	67	75	75		75	50	50	52	56	60	64	65	66	67
IB (TB)	Trading Book	99	69	64	50	56	50	*10%*	50	25	25	25	26	27	28	29	30	31
IB (BB)	Banking Book	33	23	21	17	19	25	*25%*	25	25	25	27	30	33	36	36	36	36
CORP	Domestic non-financial	2301	2613	2976	3114	2779	2718		2936	3061	3240	3383	3572	3786	3982	4203	4430	4664
CORP (TB)	Trading Book	575	653	744	778	695	680	*25%*	600	550	575	600	625	650	675	675	675	675
CORP (BB)	Banking Book	1726	1960	2232	2335	2084	2039	*100%*	2336	2511	2665	2783	2947	3136	3307	3528	3755	3989
	%oya	13.1	13.6	13.9	4.6	-10.7	-2.2		14.6	7.5	6.1	4.4	5.9	6.4	5.4	6.7	6.4	6.2
HH	Household	2593	2871	3082	3225	3278	3206		3464	3610	3822	3990	4213	4466	4697	4958	5226	5501
MORT	Mortgages	1755	2013	2123	2226	2299	2300	*100%*	2300	2315	2330	2350	2400	2450	2500	2550	2600	2650
CC	Other	838	858	959	999	980	906	*100%*	1164	1295	1492	1640	1813	2016	2197	2408	2626	2851
EXTA	External	2049	2428	2981	2978	2595	2553		2755	2860	3026	3159	3298	3430	3541	3669	3797	3996
EXTA (HG)	High-grade	615	729	894	893	778	766	*25%*	826	858	908	948	989	1029	1062	1101	1139	1199
EXTA (EM)	Risky (EM)	1434	1700	2086	2085	1816	1787	*100%*	1928	2002	2118	2212	2308	2401	2479	2569	2658	2797
	Fixed Assets	92	97	105	110	111	109	*100%*	117	122	129	135	140	146	151	156	162	170
	Other Assets	414	470	514	686	721	709	*100%*	765	795	841	878	916	953	984	1019	1055	1110
RWA	Risk-weighted assets	7002	7764	8606	9021	8736	8222		8979	9400	9953	10393	10939	11534	12064	12687	13322	14048
IRWA	Implied RWA	6575	7455	8442	8868	8389												
Bank Liabilities		8128	9062	10033	11155	10515	10343		11273	11757	12504	13101	13720	14323	14828	15411	15996	16903
M1	Retail	4256	4511	4764	5462	5896	6177		6471	6796	7185	7551	7975	8423	8867	9348	9849	10372
M2	Domestic financial	92	120	122	172	150	157		165	173	183	192	203	215	226	238	251	264
M3	Wholesale (non-capital)	3600	4157	4835	5202	4153	3679		4292	4425	4752	4953	5116	5235	5262	5325	5369	5713
	Short-term	2387	2739	2925	3165	2216	1963		2290	2362	2536	2644	2730	2794	2808	2842	2866	3049
	Long-term	1214	1418	1909	2037	1937	1715		2001	2063	2216	2310	2386	2441	2454	2483	2504	2664
EXTL	External	179	273	312	318	315	330		346	363	384	403	426	450	474	499	526	554
Capital		912	1030	1143	1154	1332	1311		1305	1299	1310	1323	1336	1338	1340	1342	1341	1342
T2	Tier II	173	201	240	271	244	250		240	230	220	210	200	180	160	140	120	100
T1	Tier I	690	759	812	877	994	997		1001	1005	1027	1050	1072	1095	1117	1138	1158	1178
TCE	Core	604	666	715	755	918	918		918	918	935	953	970	986	1003	1018	1031	1045
T1-TCE	Non-core	85	93	97	122	76	79		83	87	92	97	102	108	114	120	127	133
REGCAP	Regulatory	863	960	1052	1148	1237	1247		1241	1235	1247	1260	1272	1275	1277	1278	1278	1278
REGADJ	Regulatory Adjustments	50	70	91	6	94	64		64	64	64	64	64	64	64	64	64	64
Key Capital ratios																		
REGCAP/RWA	Regulatory Capital	12.3%	12.4%	12.2%	12.7%	14.2%	15.2%		13.8%	13.1%	12.5%	12.1%	11.6%	11.1%	10.6%	10.1%	9.6%	9.1%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***
BUFCAP	National buffer (%pts)	4.3%	4.4%	4.2%	4.7%	6.2%	7.2%		5.8%	5.1%	4.5%	4.1%	3.6%	3.1%	2.6%	2.1%	1.6%	1.1%
T1/RWA	Tier I	9.8%	9.8%	9.4%	9.7%	11.4%	12.1%		11.2%	10.7%	10.3%	10.1%	9.8%	9.5%	9.3%	9.0%	8.7%	8.4%
TCE/RWA	Core Tier I	8.6%	8.6%	8.3%	8.4%	10.5%	11.2%		10.2%	9.8%	9.4%	9.2%	8.9%	8.6%	8.3%	8.0%	7.7%	7.4%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***
BUFCAP (T1)	National buffer (%pts)	5.8%	5.8%	5.4%	5.7%	7.4%	8.1%		7.2%	6.7%	6.3%	6.1%	5.8%	5.5%	5.3%	5.0%	4.7%	4.4%
	Required buffer	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%		5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
LEVRAT	Leverage ratio	10.5	10.5	10.6	10.7	9.6	9.3		10.1	10.6	11.1	11.5	11.8	12.3	12.7	13.1	13.6	14.3

United States: Base Scenario

$ billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						86.3	83.4	83.3	82.6	82.5	80.1	76.2	72.5	68.7	64.9	64.4
	Net stable funding ratio						85.9	83.8	83.0	82.7	82.5	81.9	81.0	80.2	79.3	78.4	78.1
	Cash/Assets	4.4%	4.3%	4.3%	8.5%	8.2%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Bank Core Capital Supply Model																	
Total new Core Capital							0	0	0	17	18	17	16	16	15	13	14
NEWTCE	Required new issuance						0	0	0	0	0	0	0	0	0	0	0
RROE	Core equity shadow price	12.5%	12.3%	14.4%	15.5%	19.7%	19.0%	7.5%	10.0%	9.4%	10.2%	10.2%	10.4%	10.8%	11.2%	11.6%	12.4%
REDEF	Redefinition effects						0	0	0	0	0	0	0	0	0	0	0
PROFRET	Retained income	50	48	18	-27	-33	0	0	0	17	18	17	16	16	15	13	14
PROFRET/PROF	% of profits retained	44%	37%	18%	-180%	-284%	0%	0%	0%	10%	10%	10%	10%	10%	10%	10%	10%
Banking Sector P&L Model																	
Interest earnings		433	548	611	530	482	565	531	629	670	746	752	760	809	812	834	875
	Cash	13	21	23	16	1	1	4	9	10	12	12	12	14	14	17	18
FFUNDS	Rate of return	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
	Government bonds	46	51	47	37	39	52	60	70	76	88	88	83	80	71	63	62
BOND	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
	Domestic financial	6	6	4	3	2	3	3	3	2	2	3	3	3	3	3	3
	Trading Book	4	4	3	2	2	2	2	2	1	1	1	1	1	1	1	1
BOND	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
	Banking Book	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (BANK)	Lending spread	0.79%	0.75%	0.77%	0.78%	0.79%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	Domestic non-financial	118	170	189	148	128	141										
	Trading Book	29	42	47	37	32	35	27	28	27	31	31	31	34	33	33	33
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (CORP)	**Lending spread**	**1.15%**	**2.12%**	**2.14%**	**1.23%**	**1.11%**	**1.27%**	**0.15%**	**0.62%**	**0.62%**	**0.83%**	**0.84%**	**0.88%**	**1.10%**	**1.17%**	**1.42%**	**1.46%**
	Banking Book	88	127	142	111	96	106	91	118	126	145	146	148	164	168	179	192
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (CORP)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.27%	0.15%	0.62%	0.62%	0.83%	0.84%	0.88%	1.10%	1.17%	1.42%	1.46%
	Household	136	189	201	154	141	166	138	172	181	208	209	212	234	238	251	266
	Mortgages	90	130	140	106	98	118	95	112	113	125	121	118	126	124	127	130
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.27%	0.15%	0.62%	0.62%	0.83%	0.84%	0.88%	1.10%	1.17%	1.42%	1.46%
	Other	46	59	61	48	43	48	43	60	68	84	88	93	107	113	124	136
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.27%	0.15%	0.62%	0.62%	0.83%	0.84%	0.88%	1.10%	1.17%	1.42%	1.46%
	Real borrowing rate	**2.10%**	**3.64%**	**3.91%**	**2.73%**	**3.05%**	**3.68%**	**2.12%**	**2.37%**	**1.98%**	**2.59%**	**2.29%**	**2.03%**	**2.32%**	**2.13%**	**2.15%**	**2.22%**
	External	110	98	159	182	211	201	208	229	246	259	264	272	281	285	288	301
	High grade	11	7	15	21	27	23	22	24	25	26	27	30	31	32	34	35
	Rate of return	1.82%	1.01%	1.84%	2.33%	3.22%	3.00%	2.80%	2.80%	2.80%	2.80%	2.80%	3.00%	3.00%	3.00%	3.00%	3.00%
	Risky (EM)	100	91	144	161	184	178	186	205	221	233	237	241	250	252	255	266
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (EXTA)	Lending spread	2.92%	1.02%	2.97%	4.10%	6.18%	6.00%	6.00%	6.20%	6.50%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
	Implied Interest Earnings	428	534	624	540	523											
FFUNDS	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
BOND	10yr bond yield	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
Interest expenses		165	263	308	211	122	157	197	261	299	347	357	367	411	420	462	484
	Retail	83	133	156	108	74	83	111	149	175	203	213	225	259	273	312	329
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM1	Spread over official	-1.19%	-1.93%	-1.68%	0.04%	1.18%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
	Domestic financial	3	5	6	3	0	0	1	2	2	3	3	3	4	4	5	5

United States: Base Scenario

$ billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM2	Spread over official	-0.07%	-0.08%	-0.07%	-0.05%	-0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Wholesale (non-capital)	72	118	146	90	40	73	85	110	122	141	140	138	147	142	144	150
	Short-term	39	79	96	36	-12	3	11	23	31	39	40	41	49	49	57	59
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM3	Spread over official	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Long-term	33	39	49	54	53	70	74	86	91	102	100	97	98	93	87	90
	10yr bond yield	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
RATEM4	Spread over official	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
RATEEXTL	Average interest rate	-0.13%	-0.15%	-0.16%	-0.10%	-0.07%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
	Implied Interest Expense	157	256	308	201	114											
Net interest earnings		268	285	303	320	360	408	335	368	371	400	395	393	399	392	372	392
OOE	Other earnings	203	217	211	194	243	254	266	280	296	311	328	347	365	385	405	427
NIC	Non-interest costs	276	290	314	331	353	370	387	407	430	452	477	504	531	559	589	621
Operating profits (pre-credit losses)		194	212	200	183	250	293	214	241	237	259	246	235	233	218	188	198
CREDLOSS	Credit Losses (-)	-27	-26	-57	-153	-230	0	0	0	0	0	0	0	0	0	0	0
	Other	0	-1	-1	-14	-1	0	0	0	0	0	0	0	0	0	0	0
Income before tax		168	185	142	16	19	293	214	241	237	259	246	235	233	218	188	198
	Tax	54	59	43	6	4	88	64	72	71	78	74	71	70	65	56	59
	Extraordinary gains, net	0	3	-2	5	-4	0	0	0	0	0	0	0	0	0	0	0
Net Income		114	128	98	15	12	205	150	168	166	181	172	165	163	152	131	138
ROE	Return on Equity	12.87%	13.02%	9.12%	1.32%	0.85%	15.50%	11.43%	12.94%	12.70%	13.76%	12.97%	12.33%	12.19%	11.36%	9.80%	10.32%
ROA	Return on Assets	1.30%	1.33%	0.93%	0.13%	0.09%	1.74%	1.23%	1.31%	1.23%	1.28%	1.17%	1.07%	1.03%	0.93%	0.77%	0.78%
Macroeconomic Framework																	
Nominal GDP growth		6.5	6.0	5.1	2.6	-1.3	4.8	4.8	5.0	5.7	5.1	5.6	5.6	5.3	5.4	5.4	5.3
	Residual						*2.5*	*-1.9*									
RGDPG	Real growth	3.1	2.7	2.1	0.4	-2.4	3.3	2.7	2.5	2.7	2.3	2.7	2.7	2.4	2.6	2.5	2.5
PGDPG	GDP deflator	3.3	3.3	2.9	2.1	1.3	1.4	2.0	2.5	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.7
	Output gap	0.8	1.1	1.0	-0.9	-4.9	-2.8	-1.4	-0.2	0.8	0.4	0.5	0.7	0.5	0.5	0.5	0.4
	Employment (thousands)	133694	136086	137588	136777	130901	129697	131304	132382	133607	134588	135717	137094	138189	139263	140399	141482
	%oya	1.7	1.8	1.1	-0.6	-4.3	-0.9	1.2	0.8	0.9	0.7	0.8	1.0	0.8	0.8	0.8	0.8
Risk-weighted assets	%oya	11.3	10.9	10.8	4.8	-3.2	-2.0	9.2	4.7	5.9	4.4	5.2	5.4	4.6	5.2	5.0	5.5
Bank assets		9040	10092	11176	12309	11846	11654	12578	13056	13814	14424	15056	15661	16168	16752	17337	18245
	%oya	7.4	11.6	10.7	10.1	-3.8	-1.6	7.9	3.8	5.8	4.4	4.4	4.0	3.2	3.6	3.5	5.2
	%GDP	71.5	75.3	79.4	85.2	83.1	78.0	80.4	79.4	79.5	79.0	78.1	76.9	75.4	74.1	72.8	72.7
Bank credit to private sector		4894	5484	6059	6339	6058	5924	6400	6671	7061	7373	7785	8253	8679	9162	9656	10165
	%oya	10.2	12.0	10.5	4.6	-4.4	-2.2	8.0	4.2	5.8	4.4	5.6	6.0	5.2	5.6	5.4	5.3
	%GDP	38.7	40.9	43.0	43.9	42.5	39.7	40.9	40.6	40.6	40.4	40.4	40.5	40.5	40.5	40.5	40.5
Other credit		22627	24656	27013	28476	27100	26948	29092	30490	32365	33968	35980	37881	39617	41560	43542	45571
	%oya	8.0	9.0	9.6	5.4	-4.8	-0.6	8.0	4.8	6.1	5.0	5.9	5.3	4.6	4.9	4.8	4.7
	%GDP	179.0	184.0	191.9	197.2	190.1	180.4	185.9	185.5	186.3	186.0	186.6	186.0	184.8	183.8	182.8	181.7
Private sector credit	$ billion	27522	30140	33072	34815	33157	32872	35492	37162	39426	41341	43765	46133	48296	50722	53198	55735
	%oya	8.4	9.5	9.7	5.3	-4.8	-0.9	8.0	4.7	6.1	4.9	5.9	5.4	4.7	5.0	4.9	4.8
Nominal GDP		12638	13399	14078	14441	14258	14938	15647	16434	17374	18261	19284	20369	21441	22605	23817	25080

United States: Regulatory Change Scenario

$ billion		2005	2006	2007	2008	2009	Projection period 2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank Balance Sheet Model								*New risk-weighting*										
Bank Assets		9040	10092	11176	12309	11846	11682		12417	12896	13431	13239	13955	14531	15280	15813	16632	17420
LIQ	Cash	400	433	482	1042	976	876	*0%*	869	838	806	728	698	727	764	791	832	871
GOV	Government bonds	1058	1088	950	1088	1311	1460	*0%*	1738	1999	2149	1920	2093	2034	2139	2056	2162	2265
LIQ/TA	Liquid asset ratio	16.1%	15.1%	12.8%	17.3%	19.3%	**20.0%**		**21.0%**	**22.0%**	**22.0%**	**20.0%**	**20.0%**	**19.0%**	**19.0%**	**18.0%**	**18.0%**	**18.0%**
IB	Domestic financial	132	92	86	67	75	75		75	50	50	52	56	60	64	65	66	67
IB (TB)	Trading Book	99	69	64	50	56	50	*30%*	50	25	25	25	26	27	28	29	30	31
IB (BB)	Banking Book	33	23	21	17	19	25	*25%*	25	25	25	27	30	33	36	36	36	36
CORP	Domestic non-financial	2301	2613	2976	3114	2779	2703		2819	2881	3001	3079	3245	3444	3621	3821	4020	4211
CORP (TB)	Trading Book	575	653	744	778	695	676	*75%*	600	550	575	600	625	650	675	675	675	675
CORP (BB)	Banking Book	1726	1960	2232	2335	2084	2027	*100%*	2219	2331	2426	2479	2620	2794	2946	3146	3345	3536
	%oya	13.1	13.6	13.9	4.6	-10.7	-2.7		9.4	5.1	4.1	2.2	5.7	6.7	5.4	6.8	6.3	5.7
HH	Household	2593	2871	3082	3225	3278	3189		3325	3398	3540	3632	3827	4063	4272	4507	4742	4968
MORT	Mortgages	1755	2013	2123	2226	2299	2300	*100%*	2300	2315	2330	2350	2400	2450	2500	2550	2600	2650
CC	Other	838	858	959	999	980	889	*100%*	1025	1083	1210	1282	1427	1613	1772	1957	2142	2318
EXTA	External	2049	2428	2981	2978	2595	2559		2720	2825	2942	2900	3057	3183	3347	3464	3643	3816
EXTA (HG)	High-grade	615	729	894	893	778	768	*25%*	816	847	883	870	917	955	1004	1039	1093	1145
EXTA (EM)	Risky (EM)	1434	1700	2086	2085	1816	1791	*100%*	1904	1977	2059	2030	2140	2228	2343	2424	2550	2671
	Fixed Assets	92	97	105	110	111	109	*100%*	116	120	125	123	130	136	143	148	155	162
	Other Assets	414	470	514	686	721	711	*100%*	756	785	817	806	849	884	930	962	1012	1060
RWA	Risk-weighted assets	7002	7764	8606	9021	8736	8199		8994	9250	9634	9751	10279	10848	11408	11971	12601	13209
IRWA	Implied RWA	6575	7455	8442	8868	8389												
Bank Liabilities		8128	9062	10033	11155	10515	10267		10965	11365	11794	11524	12217	12769	13493	14003	14799	15565
M1	Retail	4256	4511	4764	5462	5896	6154		6337	6590	6909	7196	7581	8013	8433	8889	9359	9835
M2	Domestic financial	92	120	122	172	150	157		162	168	176	183	193	204	215	227	239	251
M3	Wholesale (non-capital)	3600	4157	4835	5202	4153	3627		4127	4255	4340	3761	4037	4124	4394	4412	4702	4954
	Short-term	2387	2739	2925	3165	2216	1523		1403	1064	868	564	606	619	659	441	470	495
	Long-term	1214	1418	1909	2037	1937	2104		2724	3191	3472	3197	3431	3505	3735	3971	4232	4458
EXTL	External	179	273	312	318	315	329		339	352	369	384	405	428	451	475	500	525
Capital		912	1030	1143	1154	1332	1415		1453	1531	1636	1715	1738	1762	1786	1810	1832	1855
T2	Tier II	173	201	240	271	244	250		240	280	320	360	360	360	360	360	360	360
T1	Tier I	690	759	812	877	994	1102		1149	1188	1253	1291	1315	1339	1363	1386	1409	1432
TCE	Core	604	666	715	755	918	1023		1068	1103	1164	1199	1217	1236	1254	1272	1288	1305
T1-TCE	Non-core	85	93	97	122	76	79		81	85	89	92	97	103	108	114	120	126
REGCAP	Regulatory	863	960	1052	1148	1237	1352		1389	1468	1573	1651	1675	1699	1723	1746	1769	1792
REGADJ	Regulatory Adjustments	50	70	91	6	94	64		64	64	64	64	64	64	64	64	64	64
Key Capital ratios																		
REGCAP/RWA	Regulatory Capital	12.3%	12.4%	12.2%	12.7%	14.2%	16.5%		15.4%	15.9%	16.3%	16.9%	16.3%	15.7%	15.1%	14.6%	14.0%	13.6%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***10.0%***	***11.0%***	***11.0%***	***11.0%***	***11.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***
BUFCAP	National buffer (%pts)	4.3%	4.4%	4.2%	4.7%	6.2%	8.5%		7.4%	5.9%	5.3%	5.9%	5.3%	4.7%	5.1%	4.6%	4.0%	3.6%
T1/RWA	Tier I	9.8%	9.8%	9.4%	9.7%	11.4%	13.4%		12.8%	12.8%	13.0%	13.2%	12.8%	12.3%	11.9%	11.6%	11.2%	10.8%
TCE/RWA	Core Tier I	8.6%	8.6%	8.3%	8.4%	10.5%	12.5%		11.9%	11.9%	12.1%	12.3%	11.8%	11.4%	11.0%	10.6%	10.2%	9.9%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***6.0%***	***7.0%***	***7.0%***	***7.0%***	***7.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***
BUFCAP (T1)	National buffer (%pts)	5.8%	5.8%	5.4%	5.7%	7.4%	9.4%		8.8%	6.8%	6.0%	6.2%	5.8%	5.3%	5.9%	5.6%	5.2%	4.8%
	Required buffer	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%		5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
LEVRAT	Leverage ratio	10.5	10.5	10.6	10.7	9.6	8.6		8.9	8.8	8.5	8.0	8.3	8.6	8.9	9.1	9.4	9.7

United States: Regulatory Change Scenario

							Projection period										
$ billion		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						100.2	113.1	134.0	144.7	143.1	142.3	134.7	134.0	135.9	135.3	134.8
	Net stable funding ratio						91.5	94.7	99.1	101.3	100.7	100.6	99.1	99.0	99.2	98.9	98.6
	Cash/Assets	4.4%	4.3%	4.3%	8.5%	8.2%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Bank Core Capital Supply Model																	
Total new Core Capital							105	45	35	61	35	19	19	19	18	16	17
NEWTCE	Required new issuance						0	0	25	50	25	0	0	0	0	0	0
RROE	Core equity shadow price	12.5%	12.3%	14.4%	15.5%	19.7%	19.0%	12.9%	12.8%	12.3%	13.7%	12.1%	11.5%	11.6%	11.6%	12.0%	12.7%
REDEF	Redefinition effects						0	0	-40	-40	-40	0	0	0	0	0	0
PROFRET	Retained income	50	48	18	-27	-33	105	45	50	51	50	19	19	19	18	16	17
PROFRET/PROF	% of profits retained	44%	37%	18%	-180%	-284%	50%	30%	30%	30%	25%	10%	10%	10%	10%	10%	10%
Banking Sector P&L Model																	
Interest earnings		433	548	611	530	482	578	602	688	734	803	778	785	834	843	866	913
	Cash	13	21	23	16	1	1	4	9	10	12	11	11	13	14	16	17
FFUNDS	Rate of return	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
	Government bonds	46	51	47	37	39	53	64	79	88	92	85	83	83	79	74	77
BOND	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
	Domestic financial	6	6	4	3	2	3	3	3	2	2	3	3	3	3	3	3
	Trading Book	4	4	3	2	2	2	2	2	1	1	1	1	1	1	1	1
BOND	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
	Banking Book	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (BANK)	Lending spread	0.79%	0.75%	0.77%	0.78%	0.79%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	Domestic non-financial	118	170	189	148	128	146										
	Trading Book	29	42	47	37	32	37	34	34	34	40	39	38	41	40	39	40
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (CORP)	**Lending spread**	**1.15%**	**2.12%**	**2.14%**	**1.23%**	**1.11%**	**1.49%**	**1.38%**	**1.73%**	**1.87%**	**2.33%**	**2.07%**	**2.00%**	**2.12%**	**2.16%**	**2.34%**	**2.39%**
	Banking Book	88	127	142	111	96	110	114	136	146	168	161	162	176	180	189	203
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (CORP)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.49%	1.38%	1.73%	1.87%	2.33%	2.07%	2.00%	2.12%	2.16%	2.34%	2.39%
	Household	136	189	201	154	141	173	175	201	212	245	236	237	255	259	270	286
	Mortgages	90	130	140	106	98	123	124	138	142	160	150	145	152	149	150	155
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.49%	1.38%	1.73%	1.87%	2.33%	2.07%	2.00%	2.12%	2.16%	2.34%	2.39%
	Other	46	59	61	48	43	50	51	63	70	85	86	91	104	110	120	131
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	1.15%	2.12%	2.14%	1.23%	1.11%	1.49%	1.38%	1.73%	1.87%	2.33%	2.07%	2.00%	2.12%	2.16%	2.34%	2.39%
	Real borrowing rate	**2.10%**	**3.64%**	**3.91%**	**2.73%**	**3.05%**	**3.99%**	**3.83%**	**3.99%**	**3.69%**	**4.53%**	**3.75%**	**3.22%**	**3.35%**	**3.11%**	**3.09%**	**3.21%**
	External	110	98	159	182	211	201	207	226	241	244	244	252	264	269	274	288
	High grade	11	7	15	21	27	23	22	23	24	25	25	28	29	31	32	34
	Rate of return	1.82%	1.01%	1.84%	2.33%	3.22%	3.00%	2.80%	2.80%	2.80%	2.80%	2.80%	3.00%	3.00%	3.00%	3.00%	3.00%
	Risky (EM)	100	91	144	161	184	178	185	203	217	220	219	224	234	238	243	255
	Rate of return	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
SPREAD (EXTA)	Lending spread	2.92%	1.02%	2.97%	4.10%	6.18%	6.00%	6.00%	6.20%	6.50%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
	Implied Interest Earnings	428	534	624	540	523											
FFUNDS	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
BOND	10yr bond yield	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
Interest expenses		165	263	308	211	122	164	263	345	392	424	422	435	479	495	536	566
	Retail	83	133	156	108	74	83	109	145	169	194	203	214	247	260	297	312
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM1	Spread over official	-1.19%	-1.93%	-1.68%	0.04%	1.18%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
	Domestic financial	3	5	6	3	0	0	1	2	2	3	3	3	4	4	5	5

United States: Regulatory Change Scenario

$ billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM2	Spread over official	-0.07%	-0.08%	-0.07%	-0.05%	-0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Wholesale (non-capital)	72	118	146	90	40	80	152	197	220	227	216	217	228	231	235	249
	Short-term	39	79	96	36	-12	2	7	12	12	11	9	9	11	10	9	10
	Key policy rate	3.19%	4.96%	5.05%	2.08%	0.12%	0.13%	0.50%	1.00%	1.25%	1.50%	1.50%	1.50%	1.75%	1.75%	2.00%	2.00%
RATEM3	Spread over official	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Long-term	33	39	49	54	53	78	145	185	208	217	207	208	217	222	226	239
	10yr bond yield	4.28%	4.79%	4.63%	3.64%	3.24%	3.86%	4.00%	4.25%	4.25%	4.50%	4.25%	4.00%	4.00%	3.75%	3.50%	3.50%
RATEM4	Spread over official	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%	0.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
RATEEXTL	Average interest rate	-0.13%	-0.15%	-0.16%	-0.10%	-0.07%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
	Implied Interest Expense	157	256	308	201	114											
Net interest earnings		268	285	303	320	360	414	339	344	343	378	356	350	355	348	329	347
OOE	Other earnings	203	217	211	194	243	253	261	271	284	296	312	330	347	366	385	405
NIC	Non-interest costs	276	290	314	331	353	368	370	376	384	391	402	415	436	460	484	509
Operating profits (pre-credit losses)		194	212	200	183	250	299	230	240	243	284	266	265	266	254	230	243
CREDLOSS	Credit Losses (-)	-27	-26	-57	-153	-230	0	0	0	0	0	0	0	0	0	0	0
	Other	0	-1	-1	-14	-1	0	0	0	0	0	0	0	0	0	0	0
Income before tax		168	185	142	16	19	299	230	240	243	284	266	265	266	254	230	243
	Tax	54	59	43	6	4	90	80	72	73	85	80	79	80	76	69	73
	Extraordinary gains, net	0	3	-2	5	-4	0	0	0	0	0	0	0	0	0	0	0
Net Income		114	128	98	15	12	209	150	168	170	199	186	185	186	178	161	170
ROE	Return on Equity	12.87%	13.02%	9.12%	1.32%	0.85%	15.25%	10.47%	11.24%	10.72%	11.85%	10.79%	10.59%	10.49%	9.88%	8.85%	9.23%
ROA	Return on Assets	1.30%	1.33%	0.93%	0.13%	0.09%	1.78%	1.25%	1.32%	1.29%	1.49%	1.37%	1.30%	1.25%	1.14%	0.99%	1.00%
Macroeconomic Framework																	
Nominal GDP growth		6.5	6.0	5.1	2.6	-1.3	4.4	3.0	4.0	4.8	4.2	5.4	5.7	5.3	5.4	5.3	5.1
	Residual						*2.5*	*-1.9*									
RGDPG	Real growth	3.1	2.7	2.1	0.4	-2.4	3.0	1.4	2.0	2.4	1.8	2.7	2.8	2.4	2.5	2.5	2.3
PGDPG	GDP deflator	3.3	3.3	2.9	2.1	1.3	1.4	1.6	2.0	2.4	2.3	2.6	2.8	2.8	2.8	2.7	2.7
	Output gap	0.8	1.1	1.0	-0.9	-4.9	-3.1	-2.6	-1.5	-0.4	-0.7	0.0	0.5	0.5	0.5	0.4	0.2
	Employment (thousands)	133694	136086	137588	136777	130901	129423	129684	129538	130082	130346	131131	132578	133716	134724	135744	136615
	%oya	1.7	1.8	1.1	-0.6	-4.3	-1.1	0.2	-0.1	0.4	0.2	0.6	1.1	0.9	0.8	0.8	0.6
Risk-weighted assets	%oya	11.3	10.9	10.8	4.8	-3.2	-2.3	9.7	2.8	4.2	1.2	5.4	5.5	5.2	4.9	5.3	4.8
Bank assets		9040	10092	11176	12309	11846	11682	12417	12896	13431	13239	13955	14531	15280	15813	16632	17420
	%oya	7.4	11.6	10.7	10.1	-3.8	-1.4	6.3	3.9	4.1	-1.4	5.4	4.1	5.2	3.5	5.2	4.7
	%GDP	71.5	75.3	79.4	85.2	83.1	78.5	81.0	80.9	80.4	76.1	76.1	75.0	74.9	73.6	73.5	73.2
Bank credit to private sector		4894	5484	6059	6339	6058	5892	6143	6279	6541	6710	7072	7507	7893	8328	8762	9179
	%oya	10.2	12.0	10.5	4.6	-4.4	-2.7	4.3	2.2	4.2	2.6	5.4	6.2	5.1	5.5	5.2	4.8
	%GDP	38.7	40.9	43.0	43.9	42.5	39.6	40.1	39.4	39.2	38.6	38.6	38.7	38.7	38.7	38.7	38.6
Other credit		22627	24656	27013	28476	27100	26555	27572	28155	29212	29919	31344	33039	34544	36223	37894	39503
	%oya	8.0	9.0	9.6	5.4	-4.8	-2.0	3.8	2.1	3.8	2.4	4.8	5.4	4.6	4.9	4.6	4.2
	%GDP	179.0	184.0	191.9	197.2	190.1	178.4	179.9	176.7	174.8	171.9	171.0	170.5	169.4	168.5	167.4	166.1
Private sector credit	$ billion	27522	30140	33072	34815	33157	32447	33715	34434	35753	36630	38416	40546	42437	44551	46656	48682
	%oya	8.4	9.5	9.7	5.3	-4.8	-2.1	3.9	2.1	3.8	2.5	4.9	5.5	4.7	5.0	4.7	4.3
Nominal GDP		12638	13399	14078	14441	14258	14881	15324	15936	16707	17401	18333	19376	20393	21496	22631	23783

United States: Historical Dataset

$ billion

			1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bank Balance Sheet Model																				
		Current risk-weighting																		
Bank Assets			3506	3707	4012	4315	4582	5019	5443	5735	6246	6552	7077	7602	8416	9040	10092	11176	12309	11846
LIQ	Cash	*0%*	298	273	304	307	336	355	357	366	370	390	384	387	388	400	433	482	1042	976
GOV	Government bonds	*0%*	608	662	644	624	611	661	711	722	711	760	911	1006	1086	1058	1088	950	1088	1311
LIQ/TA	Liquid asset ratio		25.8%	25.2%	23.6%	21.6%	20.7%	20.2%	19.6%	19.0%	17.3%	17.6%	18.3%	18.3%	17.5%	16.1%	15.1%	12.8%	17.3%	19.3%
IB	Domestic financial		21	23	39	55	69	55	70	81	96	96	114	124	121	132	92	86	67	75
IB (TB)	Trading Book	*10%*	15	18	29	41	52	41	53	60	72	72	86	93	90	99	69	64	50	56
IB (BB)	Banking Book	*25%*	5	6	10	14	17	14	18	20	24	24	29	31	30	33	23	21	17	19
CORP	Domestic non-financial		852	852	911	988	1052	1295	1456	1607	1757	1755	1764	1848	2034	2301	2613	2976	3114	2779
CORP (TB)	Trading Book	*25%*	213	213	228	247	263	324	364	402	439	439	441	462	509	575	653	744	778	695
CORP (BB)	Banking Book	*100%*	639	639	683	741	789	971	1092	1205	1318	1316	1323	1386	1526	1726	1960	2232	2335	2084
	%oya			0.0	6.9	8.4	6.5	23.1	12.5	10.3	9.3	-0.1	0.6	4.8	10.1	13.1	13.6	13.9	4.6	-10.7
HH	Household		877	966	1090	1200	1260	1325	1380	1451	1585	1659	1936	2129	2406	2593	2871	3082	3225	3278
MORT	Mortgages	*100%*	491	546	601	662	694	760	809	893	978	1029	1232	1359	1567	1755	2013	2123	2226	2299
CC	Other	*100%*	386	420	489	538	566	565	571	558	607	629	704	770	839	838	858	959	999	980
EXTA	External		674	740	824	932	1026	1081	1189	1201	1373	1459	1526	1643	1906	2049	2428	2981	2978	2595
EXTA (HG)	High-grade	*25%*	202	222	247	279	308	324	357	360	412	438	458	493	572	615	729	894	893	778
EXTA (EM)	Risky (EM)	*100%*	472	518	577	652	718	756	833	841	961	1021	1069	1150	1334	1434	1700	2086	2085	1816
	Fixed Assets	*100%*	53	56	59	61	65	67	71	74	76	77	79	83	87	92	97	105	110	111
	Other Assets	*100%*	123	136	142	149	164	180	208	233	278	356	361	380	388	414	470	514	686	721
RWA	Risk-weighted assets		2542	2645	2870	3162	3423	3832	4218	4526	4920	5074	5347	5695	6293	7002	7764	8606	9021	8736
IRWA	Implied RWA		2271	2426	2675	2942	3148	3469	3773	4006	4444	4661	5009	5384	6028	6575	7455	8442	8868	8389
Bank Liabilities			3243	3410	3700	3965	4207	4600	4980	5255	5715	5959	6430	6910	7565	8128	9062	10033	11155	10515
M1	Retail		2186	2219	2218	2306	2402	2510	2688	2693	2897	3193	3445	3697	4002	4256	4511	4764	5462	5896
M2	Domestic financial		58	60	75	68	79	79	92	88	113	94	101	109	100	92	120	122	172	150
M3	Wholesale (non-capital)		900	1021	1274	1446	1589	1869	2064	2331	2567	2558	2746	2939	3267	3600	4157	4835	5202	4153
	Short-term		744	753	904	1151	1186	1440	1494	1658	1855	1794	1935	2049	2116	2387	2739	2925	3165	2216
	Long-term		157	268	370	295	403	429	570	673	712	764	812	890	1151	1214	1418	1909	2037	1937
EXTL	External		98	110	133	145	136	142	136	143	139	114	137	165	197	179	273	312	318	315
Capital			263	297	312	350	376	418	462	480	530	594	647	692	850	912	1030	1143	1154	1332
T2	Tier II		63	67	73	78	89	101	116	121	133	144	148	154	163	173	201	240	271	244
T1	Tier I		250	279	301	323	340	367	400	429	463	501	535	573	631	690	759	812	877	994
TCE	Core		246	277	287	318	329	354	379	378	423	469	517	527	568	604	666	715	755	918
T1-TCE	Non-core		4	2	14	5	12	14	20	51	40	32	18	46	62	85	93	97	122	76
REGCAP	Regulatory		313	346	374	401	429	469	516	550	596	645	683	727	794	863	960	1052	1148	1237
REGADJ	Regulatory Adjustments		-49	-50	-61	-51	-53	-51	-54	-70	-66	-52	-36	-35	57	50	70	91	6	94
Key Capital ratios																				
REGCAP/RWA	Regulatory Capital		12.3%	13.1%	13.0%	12.7%	12.5%	12.2%	12.2%	12.2%	12.1%	12.7%	12.8%	12.8%	12.6%	12.3%	12.4%	12.2%	12.7%	14.2%
BIS	*Regulatory minimum*		*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*
BUFCAP	National buffer (%pts)		4.3%	5.1%	5.0%	4.7%	4.5%	4.2%	4.2%	4.2%	4.1%	4.7%	4.8%	4.8%	4.6%	4.3%	4.4%	4.2%	4.7%	6.2%
T1/RWA	Tier I		9.8%	10.6%	10.5%	10.2%	9.9%	9.6%	9.5%	9.5%	9.4%	9.9%	10.0%	10.1%	10.0%	9.8%	9.8%	9.4%	9.7%	11.4%
TCE/RWA	Core Tier I		9.7%	10.5%	10.0%	10.0%	9.6%	9.2%	9.0%	8.4%	8.6%	9.2%	9.7%	9.3%	9.0%	8.6%	8.6%	8.3%	8.4%	10.5%
BIS(T1)	*Regulatory minimum*		*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
BUFCAP (T1)	National buffer (%pts)		5.8%	6.6%	6.5%	6.2%	5.9%	5.6%	5.5%	5.5%	5.4%	5.9%	6.0%	6.1%	6.0%	5.8%	5.8%	5.4%	5.7%	7.4%
	Required buffer		5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
LEVRAT	Leverage ratio		11.2	10.7	10.7	10.8	10.7	10.7	10.6	10.4	10.5	10.2	10.4	10.5	10.6	10.5	10.5	10.6	10.7	9.6

United States: Historical Dataset

$ billion

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Key Liquidity ratios																			
	Liquidity coverage ratio																		
	Net stable funding ratio																		
	Cash/Assets	8.5%	7.4%	7.6%	7.1%	7.3%	7.1%	6.6%	6.4%	5.9%	6.0%	5.4%	5.1%	4.6%	4.4%	4.3%	4.3%	8.5%	8.2%
Bank Core Capital Supply Model																			
Total new Core Capital																			
NEWTCE	Required new issuance																		
RROE	Core equity shadow price		7.6%	14.4%	9.8%	14.3%	10.4%	12.2%	12.8%	8.0%	14.7%	15.9%	14.8%	9.7%	12.5%	12.3%	14.4%	15.5%	19.7%
REDEF	Redefinition effects																		
PROFRET	Retained income	18	21	17	18	14	17	21	19	17	20	22	25	48	50	48	18	-27	-33
PROFRET/PROF	% of profits retained	56%	49%	37%	36%	26%	28%	34%	27%	24%	27%	24%	24%	46%	44%	37%	18%	-180%	-284%
Banking Sector P&L Model																			
Interest earnings		255	245	258	303	313	340	362	367	428	402	357	335	346	433	548	611	530	482
	Cash		9	12	18	17	19	19	18	23	15	6	4	5	13	21	23	16	1
FFUNDS	Rate of return		3.00%	4.21%	5.83%	5.27%	5.44%	5.35%	5.00%	6.25%	3.93%	1.68%	1.12%	1.35%	3.19%	4.96%	5.05%	2.08%	0.12%
	Government bonds		37	46	42	40	40	36	40	43	37	38	38	45	46	51	47	37	39
BOND	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
	Domestic financial		1	2	3	4	4	3	4	5	5	5	5	5	6	6	4	3	2
	Trading Book		1	2	2	3	3	2	3	4	4	4	4	4	4	4	3	2	2
BOND	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
	Banking Book		0	1	1	1	1	1	1	2	1	1	1	2	2	2	1	1	1
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (BANK)	Lending spread		0.84%	0.66%	0.79%	0.78%	0.79%	0.93%	0.83%	0.82%	0.91%	0.89%	0.91%	0.76%	0.79%	0.75%	0.77%	0.78%	0.79%
	Domestic non-financial		50	82	74	83	91	81	107	127	107	90	74	93	118	170	189	148	128
	Trading Book		12	21	19	21	23	20	27	32	27	23	18	23	29	42	47	37	32
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (CORP)	Lending spread			2.27%	1.26%	1.66%	1.44%	0.61%	1.35%	1.51%	1.06%	0.53%	0.09%	0.52%	1.15%	2.12%	2.14%	1.23%	1.11%
	Banking Book		37	62	56	62	68	61	80	95	80	68	55	70	88	127	142	111	96
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (CORP)	Lending spread		0.00%	2.27%	1.26%	1.66%	1.44%	0.61%	1.35%	1.51%	1.06%	0.53%	0.09%	0.52%	1.15%	2.12%	2.14%	1.23%	1.11%
	Household		54	96	90	100	101	79	99	114	98	92	83	108	136	189	201	154	141
	Mortgages		30	54	49	55	57	46	59	70	61	58	53	70	90	130	140	106	98
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (HH)	Lending spread		0.00%	2.27%	1.26%	1.66%	1.44%	0.61%	1.35%	1.51%	1.06%	0.53%	0.09%	0.52%	1.15%	2.12%	2.14%	1.23%	1.11%
	Other		24	42	40	45	44	33	39	44	37	34	30	38	46	59	61	48	43
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (HH)	Lending spread		0.00%	2.27%	1.26%	1.66%	1.44%	0.61%	1.35%	1.51%	1.06%	0.53%	0.09%	0.52%	1.15%	2.12%	2.14%	1.23%	1.11%
	Real borrowing rate		3.64%	7.24%	5.74%	6.19%	6.01%	4.74%	5.51%	5.37%	3.80%	3.50%	1.94%	1.94%	2.10%	3.64%	3.91%	2.73%	3.05%
	External		89	5	65	67	73	144	96	101	148	136	143	80	110	98	159	182	211
	High grade		10	-4	5	5	6	18	9	9	17	16	18	7	11	7	15	21	27
	Rate of return		4.87%	-1.77%	1.95%	1.70%	1.79%	5.14%	2.61%	2.35%	4.10%	3.55%	3.71%	1.27%	1.82%	1.01%	1.84%	2.33%	3.22%
	Risky (EM)		79	9	60	62	68	126	87	92	131	121	126	73	100	91	144	161	184
	Rate of return		5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
SPREAD (EXTA)	Lending spread		10.02%	-5.45%	3.22%	2.64%	2.84%	10.66%	4.76%	4.16%	8.22%	6.95%	7.32%	1.64%	2.92%	1.02%	2.97%	4.10%	6.18%
	Implied Interest Earnings		240	244	292	310	328	363	365	414	410	368	348	336	428	534	624	540	523
FFUNDS	Key policy rate	3.49%	3.00%	4.21%	5.83%	5.27%	5.44%	5.35%	5.00%	6.25%	3.93%	1.68%	1.12%	1.35%	3.19%	4.96%	5.05%	2.08%	0.12%
BOND	10yr bond yield	7.00%	5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
Interest expenses		122	106	111	148	150	165	179	175	225	188	121	95	97	165	263	308	211	122
	Retail	77	59	59	79	83	91	95	92	115	105	68	52	49	83	133	156	108	74
	Key policy rate	3.49%	3.00%	4.21%	5.83%	5.27%	5.44%	5.35%	5.00%	6.25%	3.93%	1.68%	1.12%	1.35%	3.19%	4.96%	5.05%	2.08%	0.12%
RATEM1	Spread over official	0.03%	-0.31%	-1.53%	-2.32%	-1.75%	-1.75%	-1.69%	-1.57%	-2.13%	-0.48%	0.38%	0.34%	-0.07%	-1.19%	-1.93%	-1.68%	0.04%	1.18%
	Domestic financial	2	2	3	4	4	4	4	4	6	4	2	1	1	3	5	6	3	0

United States: Historical Dataset

$ billion

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Key policy rate	3.49%	3.00%	4.21%	5.83%	5.27%	5.30%	5.35%	5.00%	6.25%	3.93%	1.68%	1.12%	1.35%	3.19%	4.96%	5.05%	2.08%	0.12%
RATEM2	Spread over official	-0.08%	-0.01%	-0.15%	-0.14%	-0.14%	-0.15%	-0.10%	-0.12%	-0.13%	-0.09%	-0.07%	-0.06%	-0.07%	-0.07%	-0.08%	-0.07%	-0.05%	-0.04%
	Wholesale (non-capital)	30	34	40	61	58	65	79	76	105	74	36	27	31	72	118	146	90	40
	Short-term	20	22	22	44	42	47	59	51	77	47	9	2	1	39	79	96	36	-12
	Key policy rate	3.49%	3.00%	4.21%	5.83%	5.27%	5.44%	5.35%	5.00%	6.25%	3.93%	1.68%	1.12%	1.35%	3.19%	4.96%	5.05%	2.08%	0.12%
RATEM3	Spread over official	-0.74%	-0.09%	-1.52%	-1.55%	-1.72%	-1.88%	-1.32%	-1.74%	-1.89%	-1.35%	-1.17%	-1.01%	-1.29%	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%
	Long-term	10	12	18	17	16	19	20	24	29	27	27	25	30	33	39	49	54	53
	10yr bond yield	7.00%	5.85%	7.08%	6.57%	6.43%	6.34%	5.25%	5.64%	6.02%	5.00%	4.59%	4.00%	4.26%	4.28%	4.79%	4.63%	3.64%	3.24%
RATEM4	Spread over official	-0.74%	-0.09%	-1.52%	-1.55%	-1.72%	-1.88%	-1.32%	-1.74%	-1.89%	-1.35%	-1.17%	-1.01%	-1.29%	-1.47%	-1.86%	-1.65%	-0.90%	-0.58%
	External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RATEEXTL	Average interest rate	0.00%	-0.02%	-0.27%	-0.27%	-0.27%	-0.26%	-0.16%	-0.18%	-0.18%	-0.11%	-0.09%	-0.09%	-0.12%	-0.13%	-0.15%	-0.16%	-0.10%	-0.07%
	Implied Interest Expense	109	95	102	144	144	160	178	172	226	183	106	81	82	157	256	308	201	114
Net interest earnings		134	139	147	154	163	175	183	192	204	214	236	240	249	268	285	303	320	360
OOE	Other earnings	66	75	76	82	94	104	124	145	154	159	172	187	185	203	217	211	194	243
NIC	Non-interest costs	131	140	144	150	161	170	195	205	217	223	234	246	258	276	290	314	331	353
Operating profits (pre-credit losses)		68	75	79	87	96	109	113	132	141	150	175	181	176	194	212	200	183	250
CREDLOSS	Credit Losses (-)	-26	-17	-11	-13	-16	-20	-22	-22	-30	-43	-48	-35	-26	-27	-26	-57	-153	-230
	Other	4	3	-1	1	1	2	3	0	-2	4	6	6	3	0	-1	-1	-14	-1
Income before tax		46	61	67	75	80	91	93	111	109	111	133	151	153	168	185	142	16	19
	Tax	14	20	22	26	28	32	32	39	38	37	44	49	49	54	59	43	6	4
	Extraordinary gains, net	0	2	0	0	0	0	1	0	0	0	0	0	0	0	3	-2	5	-4
Net Income		32	43	45	49	52	59	62	72	71	74	89	103	104	114	128	98	15	12
ROE	Return on Equity	12.98%	15.33%	14.61%	14.66%	14.44%	14.67%	13.94%	15.30%	13.99%	13.15%	14.42%	15.33%	13.71%	12.87%	13.02%	9.12%	1.32%	0.85%
ROA	Return on Assets	0.93%	1.20%	1.15%	1.17%	1.19%	1.23%	1.19%	1.31%	1.18%	1.16%	1.32%	1.40%	1.30%	1.30%	1.33%	0.93%	0.13%	0.09%

Macroeconomic Framework

Nominal GDP growth		5.8	5.1	6.3	4.7	5.7	6.3	5.5	6.4	6.4	3.4	3.5	4.7	6.5	6.5	6.0	5.1	2.6	-1.3
	Residual																		
RGDPG	Real growth	3.4	2.9	4.1	2.5	3.7	4.5	4.4	4.8	4.1	1.1	1.8	2.5	3.6	3.1	2.7	2.1	0.4	-2.4
PGDPG	GDP deflator	2.4	2.2	2.1	2.1	1.9	1.8	1.1	1.5	2.2	2.3	1.6	2.1	2.8	3.3	3.3	2.9	2.1	1.3
	Output gap	-1.7	-1.7	-0.7	-1.3	-0.9	-0.1	0.5	1.3	1.7	-0.4	-1.2	-1.1	0.2	0.8	1.1	1.0	-0.9	-4.9
	Employment (thousands)	108722	110847	114282	117307	119698	122767	125923	128992	131794	131830	130340	129996	131419	133694	136086	137588	136777	130901
	%oya	0.3	2.0	3.1	2.6	2.0	2.6	2.6	2.4	2.2	0.0	-1.1	-0.3	1.1	1.7	1.8	1.1	-0.6	-4.3
Risk-weighted assets	%oya		4.0	8.5	10.2	8.2	12.0	10.1	7.3	8.7	3.1	5.4	6.5	10.5	11.3	10.9	10.8	4.8	-3.2
Bank assets		3506	3707	4012	4315	4582	5019	5443	5735	6246	6552	7077	7602	8416	9040	10092	11176	12309	11846
	%oya		5.7	8.2	7.6	6.2	9.5	8.5	5.4	8.9	4.9	8.0	7.4	10.7	7.4	11.6	10.7	10.1	-3.8
	%GDP		55.6	56.6	58.2	58.5	60.2	61.9	61.3	62.8	63.7	66.5	68.2	70.9	71.5	75.3	79.4	85.2	83.1
Bank credit to private sector		1729	1817	2000	2187	2312	2620	2836	3058	3342	3413	3700	3977	4441	4894	5484	6059	6339	6058
	%oya		5.1	10.1	9.3	5.7	13.3	8.3	7.8	9.3	2.1	8.4	7.5	11.6	10.2	12.0	10.5	4.6	-4.4
	%GDP		27.3	28.2	29.5	29.5	31.4	32.3	32.7	33.6	33.2	34.8	35.7	37.4	38.7	40.9	43.0	43.9	42.5
Other credit		7802	8445	8931	9704	10364	11208	12646	14134	15226	16764	18078	19630	20942	22627	24656	27013	28476	27100
	%oya		8.2	5.8	8.7	6.8	8.2	12.8	11.8	7.7	10.1	7.8	8.6	6.7	8.0	9.0	9.6	5.4	-4.8
	%GDP		126.7	126.1	130.9	132.2	134.5	143.8	151.1	153.0	163.0	169.9	176.2	176.5	179.0	184.0	191.9	197.2	190.1
Private sector credit	$ billion	9531	10263	10931	11891	12675	13828	15482	17192	18568	20178	21778	23607	25382	27522	30140	33072	34815	33157
	%oya		7.7	6.5	8.8	6.6	9.1	12.0	11.0	8.0	8.7	7.9	8.4	7.5	8.4	9.5	9.7	5.3	-4.8
Nominal GDP		6342.3	6667.3	7085.1	7414.6	7838.5	8332.3	8794	9354	9952	10286	10642	11142	11868	12638	13399	14078	14441	14258

Chapter 4

Impact on the Euro Area Economy

The IIF wishes to acknowledge and express its gratitude for the help and collaboration received from the European Banking Federation (EBF[51]) in the preparation of the Euro Area chapter.

Introduction and Summary

- The Euro Area banking system is the largest in the world. Total on-balance sheet assets of Euro Area banks were €31.1 trillion at the end of 2009, which was almost 350 percent of regional nominal GDP. In the first decade of the Euro, lending growth to the private sector was vigorous, averaging about 8% per year from 1999 to 2008.

- Euro Area banks have recently improved their capital positions, through a combination of capital raising activities (including state injections) and, in 2009, through a reduction in risk-weighted assets. From December 2007 through December 2009, Euro Area banks' aggregate total regulatory capital ratio rose from 10.6% of risk-weighted assets to 12.5% of risk-weighted assets, while the aggregate Tier 1 capital ratio rose from 7.7% to 9.4% of risk-weighted assets.

- In assessing the impact of regulatory reform on Euro Area banks, we focus on the implementation of the Basel III proposals, which are likely to be reflected in European Union law quite soon after agreement.

- For Euro Area banks, the redefinition of capital is significant issue (especially the handling of minority interests).

[51] Set up in 1960, the European Banking Federation is the voice of the European banking sector (European Union & European Free Trade Association countries). The EBF represents the interests of some 5000 European banks: large and small, wholesale and retail, local and cross-border financial institutions. The EBF is committed to supporting EU policies to promote the single market in financial services in general and in banking activities in particular. It advocates free and fair competition in the EU and world markets and supports the banks' efforts to increase their efficiency and competitiveness.

- Based on our framework, the Euro Area economy could be hit quite hard by projected regulatory changes. For 2011-2020 as a whole, average annual growth would be reduced by about 0.5 percentage points per year, which would compound to a cumulative loss of about 4.5 percentage points. Nominal GDP would end up about €853 billion lower by the end of the decade. In turn, this would imply a trajectory for employment that would lead to about 4.8 million less jobs being created over the next 10 years or so than might otherwise be the case.

- The Euro Area would thus appear to be quite vulnerable to regulatory reform. Intuitively, this should not be too surprising, since the Euro Area banking system is large both relative to the economy (about 350%) *and* as source of debt financing for the economy (about 75% of total debt financing), and this all in an economy where financial structures are relatively heavily geared to debt rather than equity.

- While the magnitude of these results is eye-catching in itself, their dynamic is also quite concerning. In our regulatory change scenario, restraint imposed on banks is sufficiently severe to keep the economy in or close to recession through 2014.

- While our model may be overstating the sensitivity of the economy to banking flows, there are three reasons to worry that the outcome could be even worse than projected.

- First, banks do not fully meet new liquidity ratio requirements into our regulatory reform scenario, which might imply the need for even more lending restraint.

- Second, this banking restraint will come against the backdrop of a significant trend towards fiscal retrenchment across the Euro Area. Indeed, we suspect that it will be very difficult to achieve a lowering in public sector leverage without a resumption of growth in private leverage. Regulatory reform will limit the latter possibility.

- Third, regulatory reform could weaken bank lending flows to Emerging Europe, which could then feedback to weaken Euro Area growth through lower exports.

Euro Area Banks Dominate the Region's Financial System

The Euro Area banking system has a number of important characteristics. First, and most importantly, it is the largest banking system in the world. Total on-balance sheet assets of Euro Area banks were €31.1 trillion at the end of 2009, which was almost 350 percent of regional nominal GDP (Table 9)[52]. At the end of 2009, the Euro Area banking system was about 3.75 times the size of the US banking system[53]. Second, banks dominate the credit intermediation process in the Euro Area. Banks account for about three-quarters of intermediation in the Euro Area (and non-banks thus account for about 25 percent of the total). In the United States, these relative shares are reversed.

Table 9
The Euro Area Banking System in Summary

	Dec 06	Dec 07	Dec 08	Dec 09
Number of Banks	6,130	6,127	6,596	6458
Number of Banks that Left the System*	251	198	334	233
Total Assets (*€ trillion*)	25.945	29.440	31.837	31.147
%oya	9.8	13.5	8.1	-2.2
%GDP	303.2	326.9	343.8	346.6
Risk-Weighted Assets (RWA, *€ trillion*)	14.134	14.385	15.795	15.302
%oya	11.3	1.8	9.8	-3.1
Capital Ratios (*all expressed as % of RWA*)				
Regulatory Capital	11.2	10.6	11.6	12.5
Tier 1 Capital	8.0	7.7	8.6	9.4
Core Tier 1 Capital	6.8	6.6	7.3	8.0
Liquid Asset Ratio	5.6	5.4	5.3	5.9
Share of Banks in Credit Intermediation (%)	73.8	74.4	74.8	73.8

* total over previous 12 months

Source: European Central Bank

Finally, the Euro Area banking system supplies the broad money stock of a unique monetary area—one where a single currency was introduced into national economies, whose banking systems had developed for centuries along national lines. A decade after the introduction of the Euro, banking systems remain relatively diverse across the region, with most countries maintaining relatively large domestic banking systems (Table 10). The share of each banking system in total assets broadly matches the share of each country's GDP in the regional total. Among the major countries, France, Germany and the Netherlands have relatively large systems, while Italy's is relatively small (Table 10). Some of the smaller countries have banking systems that are vast relative to their national economies (e.g., Luxembourg and Ireland).

[52] Note that this does not include off-balance sheet items.
[53] The US banking system's assets were the equivalent of €8.3 trillion at the end of 2009 (see Table 5, Chapter 3).

Table 10
Euro Area: Banking Sector by Country
2008

	Number of Credit Institutions	Total Assets (€ billion)	as % of National GDP	Average Asset Size (€ billion per bank)	Share of Euro-16 Total Assets	Nominal GDP (€ billion)	Share of Euro-16 GDP
Austria	803	1,071.9	380%	1.335	3.4%	281.9	3.0%
Belgium	105	1,276.3	370%	12.155	4.0%	344.7	3.7%
Cyprus	163	118.1	685%	0.725	0.4%	17.2	0.2%
Finland	357	396.2	215%	1.110	1.2%	184.2	2.0%
France	728	7,710.6	395%	10.591	24.2%	1,950.1	21.1%
Germany	1,989	7,892.7	316%	3.968	24.7%	2,495.8	27.0%
Greece	66	464.5	194%	7.038	1.5%	239.1	2.6%
Ireland	501	1,731.5	952%	3.456	5.4%	181.8	2.0%
Italy	818	3,687.7	235%	4.508	11.6%	1,567.9	16.9%
Luxembourg	153	1,271.8	3232%	8.312	4.0%	39.3	0.4%
Malta	23	42.3	743%	1.839	0.1%	5.7	0.1%
Netherlands	302	2,231.5	374%	7.389	7.0%	595.9	6.4%
Portugal	175	482.1	290%	2.755	1.5%	166.4	1.8%
Spain	362	3,409.4	313%	9.418	10.7%	1,088.5	11.8%
Slovakia	26	65.5	101%	2.519	0.2%	64.8	0.7%
Slovenia	25	49.0	132%	1.960	0.2%	37.1	0.4%
Euro Area (16)	6,596	31,901.1	344%	4.836	100%	9,260.4	100%

Source: European Central Bank

The region's banking system—which was the sum of the individual parts at the onset of monetary union—was relatively large at the outset of the union. In the first decade of the Euro, it grew relatively rapidly. Bank lending to the private sector was relatively vigorous, averaging about 8 percent per year between 1999 and September 2008, even though this included a difficult recession and debt-deflation phase (2001-03; Chart 22).

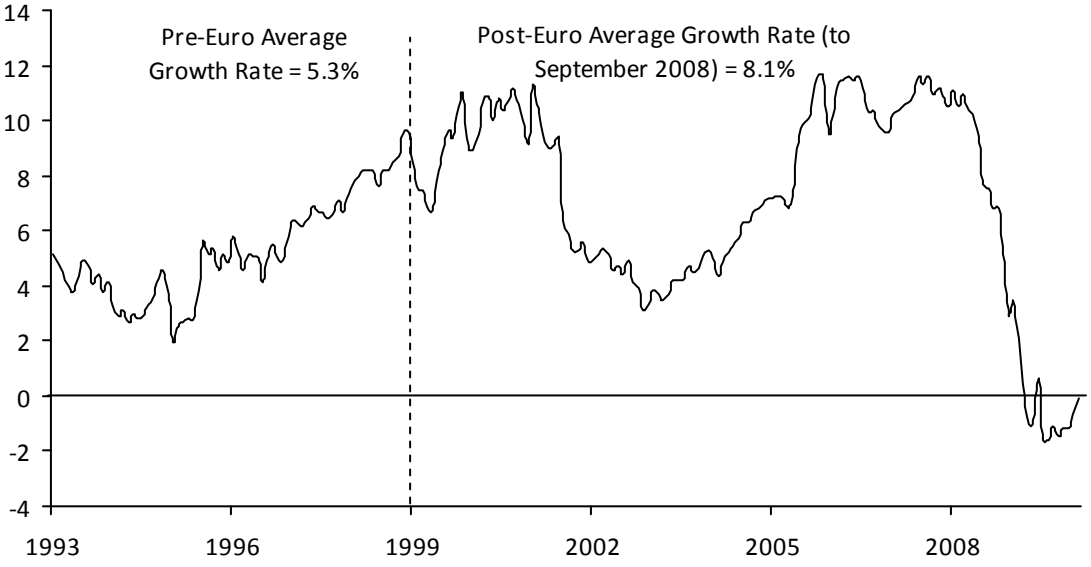
In the post-Lehman period, however, the Euro Area bank lending environment has changed dramatically. Credit had been up 8.8 percent in the year through September 2008. In the year through October 2009, it was down 1.3 percent. At the same time as this 10 percentage point reversal in bank credit growth, Euro Area nominal GDP changed course. It contracted 3 percent in 2009, having risen by 2.8 percent in 2008.

There has recently been some sign of improvement, consistent with the hesitant signs of revival in the Euro Area economy. Lending to households has begun to rise again, and the lending to businesses has stopped contracting (Chart 23). These developments highlight that swings in nominal bank lending remain highly reflective of swings in underlying economic activity.

Chart 22

Euro Area Bank Lending to Private Sector

percent change over latest 6m, saar

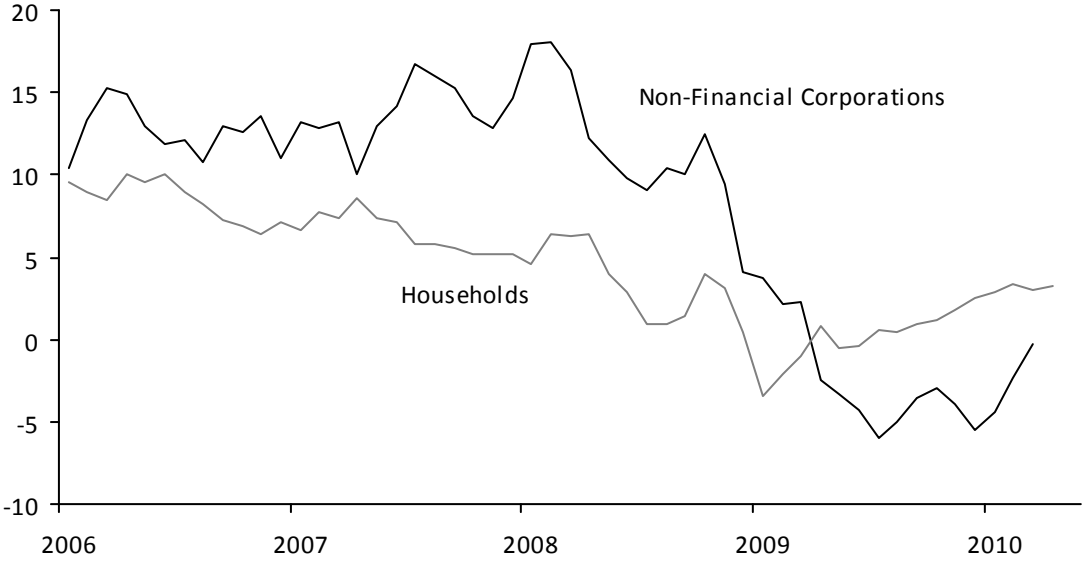


Source: European Central Bank

Chart 23

Euro Area: Bank Credit to Households and Businesses

percent, 3m/3m saar



Source: European Central Bank

Euro Area banks have improved their capital positions, through a combination of capital raising activities (including state injections) and, in 2009, through a reduction in risk-weighted assets. From December 2007 through December 2009, Euro Area banks' aggregate total regulatory capital ratio rose from 10.6% of risk-weighted assets to 12.5%

of risk-weighted assets, while the aggregate Tier 1 capital ratio rose from 7.7% to 9.4% of risk-weighted assets. By way of reference, Euro Area real GDP fell by a cumulative 3.5% in 2008-09, a performance that was about 6% points less than trend.

Specifics of Regulatory Change Scenario

In our quantitative work to date, we have focused on modeling those measures which have both a high level of clarity (albeit so far unquantified) and likelihood of occurrence (see Chapter 2). For the Euro Area, this means focusing on the proposed revisions to the Basel II framework (see Chapter 2). As part of the European Union, the Euro Area is likely to adopt any revisions to the Basel Accords in their entirety, since it is standard EU practice to embody the recommended regulatory approach of the Basel Committee into a Capital Requirements Directive, when then has the force of law across EU member states. For example, the EU was an early adopter of Basel II. The European Commission has launched a consultation for a new Directive ("CRD IV") which would incorporate the new Basel proposals into EU law[54].

In assessing the cumulative effects on the Euro Area economy, our specific assumptions are:

1) *An increase in trading book capital at the end of 2010*. Our estimate is that the Euro Area banking system held about €2.5 trillion in trading book assets at the end of 2009. This total has jumped since the end of 2007, when it was €1.8 trillion partly because Euro Area banks have brought trading assets on to their balance sheets previously held off balance sheet by special purpose vehicles. Based on industry estimates, we project the capital charge levied against these holdings to rise by about three fold, which we capture by raising the average risk weighting assigned to such trading book securities from 10% to 30% for securities of financial firms held in the trading book), and from 25% to 75% for securities of non-financial firms.
2) *A two percentage point increase in the minimum Tier 1 and overall regulatory capital ratios, to 6% and 10%, respectively, to take place at the end of 2012*. We assume that Euro Area supervisors will enforce broadly the same average ("fixed") buffers of actual capital over these regulatory minima in 2012-2020, as were applied to 2001-07. In 2001-07, the average buffer between total regulatory capital and the BIS minimum was 3.4 percentage points; for Tier 1, the average buffer was 4.4 percentage points.
3) *Capital redefinition effects*. Euro Area banks seem quite likely to be significantly affected by provisions to adjust the regulatory capital—notably the exclusion of minority interests and deferred tax assets from Tier 1 capital. To an extent, this

[54] See European Commission (2010)
http://ec.europa.eu/internal_market/consultations/docs/2010/crd4/consultation_paper_en.pdf

reflects the unique institutional structure of some key Euro Area systems, which is hard to fit into a "one size fits all" structure[55]. While there is considerable uncertainty about how much these possible deductions amount to in the aggregate, we have estimated them to total €180 billion (which amounts to about 15% of core Tier 1 equity as of December 2009). We thus project that about €180 billion of what is currently eligible to be counted as Tier 1 capital is re-classified (as Tier 2 capital) over a 3 year horizon from 2012 to 2014 (i.e., €60 billion per year).

4) *No countercyclical buffer*. In principle, we would expect regulators to introduce a one percentage point counter-cyclical ("variable") capital buffer in the midst of the next cyclical upswing. For the Euro Area, however, we judge growth prospects to be sufficiently muted over coming years, that it is hard to project any enthusiasm among policy makers to introduce such an additional "variable" buffer. Of course, policy makers will not know this ex ante, so they might well go ahead and introduce such a restriction anyway. But, for now, we have left this out of our Euro Area regulatory change scenario.
5) *Higher holdings of liquid assets as a result of the Liquidity Coverage Ratio (LCR)*. The Liquidity Coverage Ratio will require that banks hold sufficient liquid assets to ensure that they can survive a period of extreme stress. In the base scenario, the LCR is not a binding constraint. But in our regulatory change scenario, we adjust the overall liquid asset ratio (the ratio of cash and government bonds held to total assets), in an effort to allow banks to meet the LCR through the projection horizon in the regulatory change scenario. Our dilemma in the Euro Area framework is that we find it very difficult to set a plausible path for liquid assets that allows the Euro Area banking system, in aggregate, to hit the minimum 100% LCR through the projection horizon (see next section).
6) *A greater reliance on longer-term over short-term wholesale funding, as a result of the Net Stable Funding Ratio (NSFR)*. The new liquidity provisions will also apply on the liabilities' side of banks' balance sheets. We assume that the NSFR will be introduced in 2012, and that this will have the effect (in the 2010-2012 period) of shifting banks' wholesale funding to longer-term debt. Once again, however, we find it hard to see how the Euro Area banking system can achieve the mandated 100% NSFR through the projection horizon (see next section).
7) *A region-wide bank levy*. Proposals are developing for a region-wide bank levy to pre-fund a Bank Resolution fund. Current details are sketchy, but we assume this will amount to an annual tax of €5 billion from 2012 onwards.

[55] Austrian and French banks seem likely to be particularly hard hit by the minority interest deduction (see Davies et al (2010)).

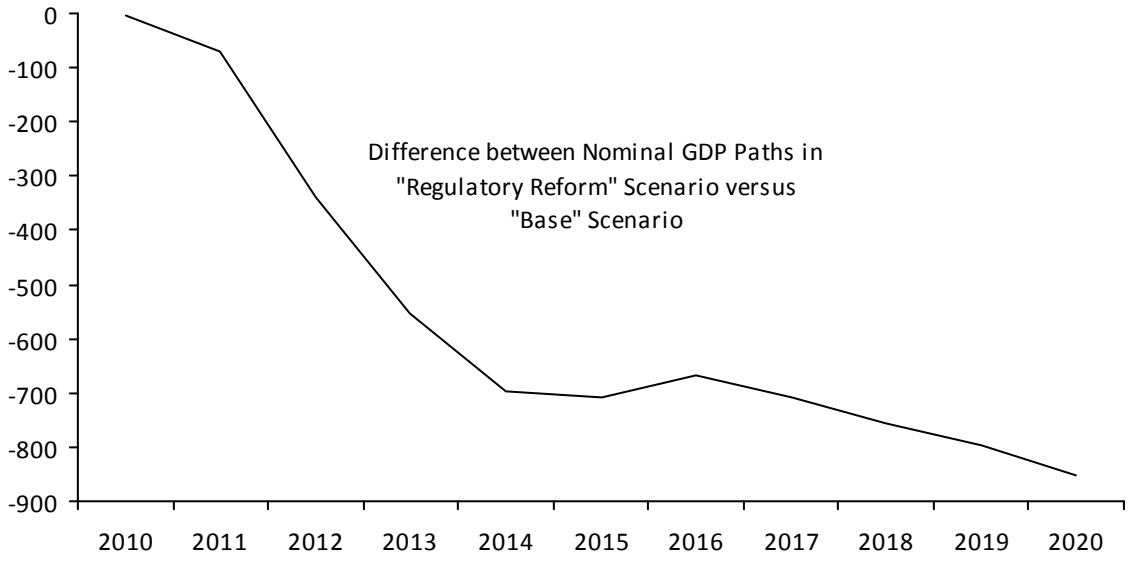
The Results in Outline

Based on our framework, the Euro Area economy could be hit quite hard by projected changes. For 2011-2020 as a whole, average annual growth would be reduced by about 0.5 percentage points per year, which would compound to a cumulative loss of about 4.5 percentage points (Table 11). Nominal GDP would end up about €853 billion lower by the end of the decade (Chart 24). In turn, this would imply a trajectory for employment that would lead to about 4.8 million less jobs being created over the next 10 years or so than might otherwise be the case (Chart 25). It should be noted that most of these losses occur over the next 5 years.

The Euro Area would thus appear to be quite vulnerable to the impact of regulatory reform. Intuitively, this should not be too surprising, since the Euro Area banking system is large both relative to the economy (about 350%) *and* as source of debt financing for the economy (about 75% of total debt financing), and this all in an economy where financial structures are relatively heavily geared to debt rather than equity.

Chart 24

Estimated "Cost" of Regulatory Reform on Euro Area Economy
€ billion



Source: IIF Estimates

While the magnitude of these results is eye-catching in itself, their dynamic is also quite concerning. In our regulatory change scenario, restraint imposed on banks is sufficiently severe to keep the regional economy in or close to recession through 2014, during which time the main differential between the “base” and “regulatory” scenarios opens up (Charts 24 and 25). Through 2014, the loss in nominal income would be about €690 billion, which would imply a loss in tax revenue of about €300 billion, or about 3 percent of GDP.

Table 11
Euro Area: Cumulative Effects Results

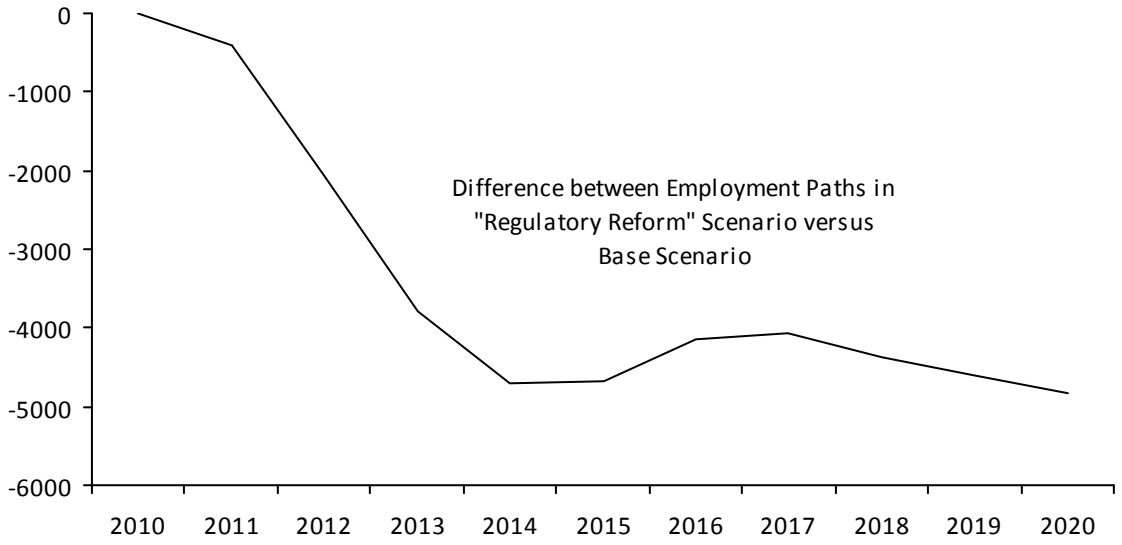
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	*Avg 2011-20*
Real GDP (2010 = 100)												
Base	100.0	101.1	102.0	104.4	106.0	106.3	106.9	108.8	109.7	111.4	112.7	
Regulatory change	100.0	100.5	99.1	100.0	101.0	101.7	103.0	104.5	105.1	106.6	107.7	
Difference (%)	0.0	-0.6	-2.8	-4.2	-4.7	-4.3	-3.7	-3.9	-4.2	-4.3	-4.4	
Real GDP (%y/y)												
Base	1.0	1.1	1.0	2.3	1.6	0.2	0.7	1.7	0.8	1.6	1.2	*1.2*
Regulatory change	1.0	0.5	-1.3	0.9	1.0	0.6	1.3	1.5	0.5	1.5	1.0	*0.7*
GDP deflator (2010 = 100)												
Base	100.0	101.4	102.9	105.0	107.4	109.6	111.7	114.0	116.3	118.7	121.2	
Regulatory change	100.0	101.3	102.2	103.6	105.2	107.0	109.0	111.3	113.5	115.9	118.3	
GDP deflator (%y/y)												
Base	1.2	1.4	1.5	2.0	2.3	2.1	1.9	2.1	2.0	2.1	2.1	*1.9*
Regulatory change	1.2	1.3	1.0	1.3	1.6	1.7	1.9	2.1	2.0	2.1	2.1	*1.7*
Nominal GDP (€ trillion)												
Base	9.183	9.407	9.641	10.064	10.456	10.695	10.975	11.389	11.708	12.140	12.546	*3.2*
Regulatory change	9.181	9.338	9.303	9.510	9.760	9.988	10.307	10.683	10.950	11.342	11.694	*2.4*
Difference (€ bn)	-2	-69	-338	-554	-696	-708	-667	-706	-758	-798	-853	
Employment (millions)												
Base	141.238	142.471	143.678	145.721	147.808	148.766	149.511	151.109	152.542	154.163	155.835	
Regulatory change	141.225	142.070	141.615	141.934	143.100	144.084	145.365	147.041	148.167	149.550	151.009	
Difference ('000)	-13	-401	-2064	-3787	-4708	-4682	-4146	-4069	-4375	-4613	-4825	
Private sector credit (2010 = 100)												
Base	100.0	103.0	105.6	111.4	116.7	119.2	122.4	128.0	131.8	137.7	143.1	
Regulatory change	100.0	101.8	99.6	101.6	104.4	106.7	110.6	115.4	118.4	123.4	127.8	
Private sector credit growth (%y/y)												
Base	3.1	3.0	2.5	5.6	4.8	2.1	2.7	4.6	3.0	4.4	3.9	*3.7*
Regulatory change	3.1	1.8	-2.2	2.1	2.7	2.2	3.6	4.4	2.5	4.3	3.5	*2.5*
Bank assets (%y/y)												
Base	1.3	1.4	1.1	3.0	2.5	0.9	1.3	2.5	1.5	2.5	2.2	*1.9*
Regulatory change	2.0	3.9	2.2	5.0	1.3	1.0	2.0	2.5	1.4	2.5	2.0	*2.4*
Risk-weighted assets (%y/y)												
Base	1.8	2.7	1.8	4.2	3.6	1.3	1.8	3.5	2.1	3.4	2.9	*2.7*
Regulatory change	2.0	8.1	-1.1	2.1	1.6	1.2	2.6	3.2	1.7	3.1	2.5	*2.5*
Bank credit growth to the private sector (%y/y)												
Base	2.8	2.6	2.0	5.4	4.5	1.7	2.2	4.3	2.6	4.2	3.5	*3.3*
Regulatory change	2.7	1.4	-3.1	1.6	2.3	1.7	3.3	4.1	2.0	4.0	3.1	*2.0*
Core equity shadow price (percent)												
Base	17.7%	12.2%	11.4%	10.2%	7.8%	8.5%	9.8%	8.9%	8.6%	9.5%	8.4%	*9.5%*
Regulatory change	17.7%	12.2%	15.6%	17.2%	15.6%	15.1%	13.9%	13.2%	12.7%	12.5%	10.2%	*13.8%*
Real lending rate (percent)												
Base	3.9%	3.8%	4.1%	3.5%	3.1%	3.5%	3.7%	3.4%	3.5%	3.2%	3.1%	*3.5%*
Regulatory change	3.9%	4.1%	5.5%	5.3%	4.9%	4.8%	4.5%	4.0%	4.1%	3.7%	3.5%	*4.4%*
Difference (bps)	0	28	135	183	185	137	80	65	60	50	47	97
Regulatory capital ratio (% of RWA)												
Base	12.6%	12.5%	12.6%	12.4%	12.3%	12.4%	12.4%	12.1%	12.0%	11.8%	11.5%	*12.2%*
Regulatory change	12.6%	12.3%	13.1%	13.6%	14.2%	14.6%	14.7%	14.6%	14.7%	14.3%	14.2%	*14.0%*
Core Tier 1 Capital (€ billion)												
Base	1272	1313	1362	1398	1432	1461	1484	1505	1525	1525	1525	
Regulatory change	1274	1391	1435	1503	1578	1671	1786	1896	2003	2049	2093	
Difference	2	78	73	105	146	210	303	391	479	524	568	
Core Tier 1 capital ratio (% of RWA)												
Base	8.2%	8.2%	8.4%	8.2%	8.1%	8.2%	8.2%	8.0%	8.0%	7.7%	7.5%	*8.0%*
Regulatory change	8.2%	8.2%	8.6%	8.8%	9.1%	9.5%	9.9%	10.2%	10.6%	10.5%	10.5%	*9.6%*
Return on bank equity (%)												
Base	5.8%	6.8%	9.4%	11.4%	10.4%	8.9%	9.9%	9.4%	8.4%	8.7%	8.6%	*9.2%*
Regulatory change	6.1%	5.0%	3.8%	5.3%	5.4%	5.7%	6.7%	6.3%	5.9%	6.5%	6.2%	*5.7%*

Sources: IIF Estimates

Chart 25

Euro Area Employment Implications of Regulatory Reform

thousands



Source: IIF Estimates

The main mechanism through which the regulatory change measures outlined above affect the economic outlook through our framework is via an increase in bank lending rates to the private sector. In turn, this rate rise is driven by a combination of an increase in the cost of funding to banks – explicitly as long-term funding rates rise, and implicitly as the "shadow cost" of equity rises as banks are required to issue substantial amounts of equity to meet new capital requirements and definitions (Chart 26). In our regulatory change scenario, banks are required to raise about €150 billion (relative to the base) by the end of 2014. Moreover, interest earnings are reduced by a requirement to hold lower yielding government debt as a way of achieving new liquidity requirements. The result is a rise in lending rates to the private sector, which peaks at about 185 basis points in 2014 (Chart 27). Note that the ECB is not well-positioned to provide any offset to this rising cost of bank intermediation over this time horizon, since it starts with rates at just 1%.

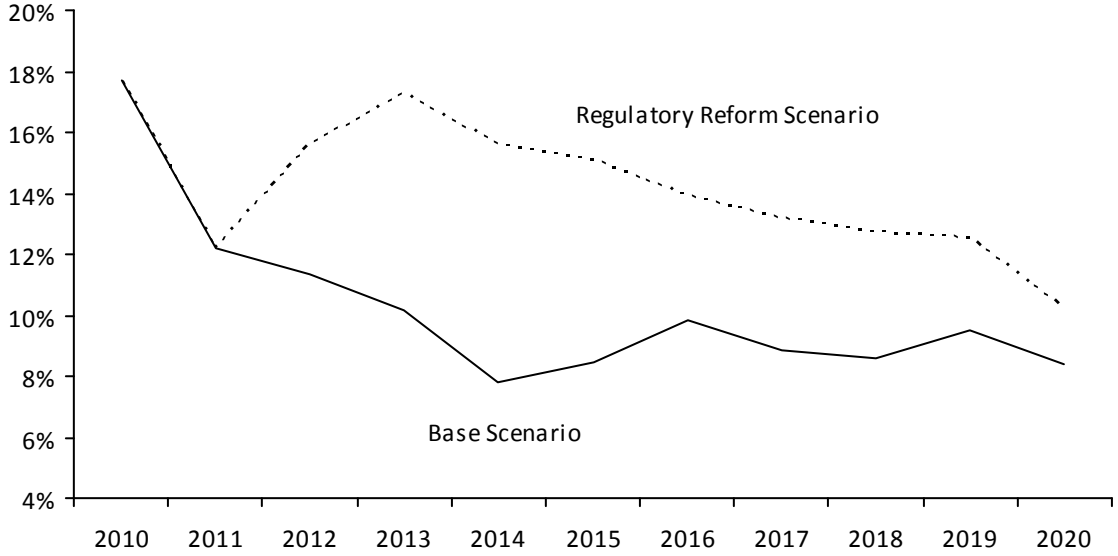
Given the Euro Area's bank dependency, the effect of such a rise in bank lending rates could be quite severe. The path of bank lending to the private sector could be quite weak through 2014 (Chart 28). Given the maturity structure of private sector lending, this would imply very weak *marginal* lending decisions. In Germany, for example, 17% of loans are short-term (one-year maturity of less), 14% are medium-term (one to five year maturity) and 69% long-term (5 year or more)[56].

[56] See Frenkel and Rudolf (2010).

Chart 26

Shadow Cost of Bank Equity

percent (see Appendix for defintion)

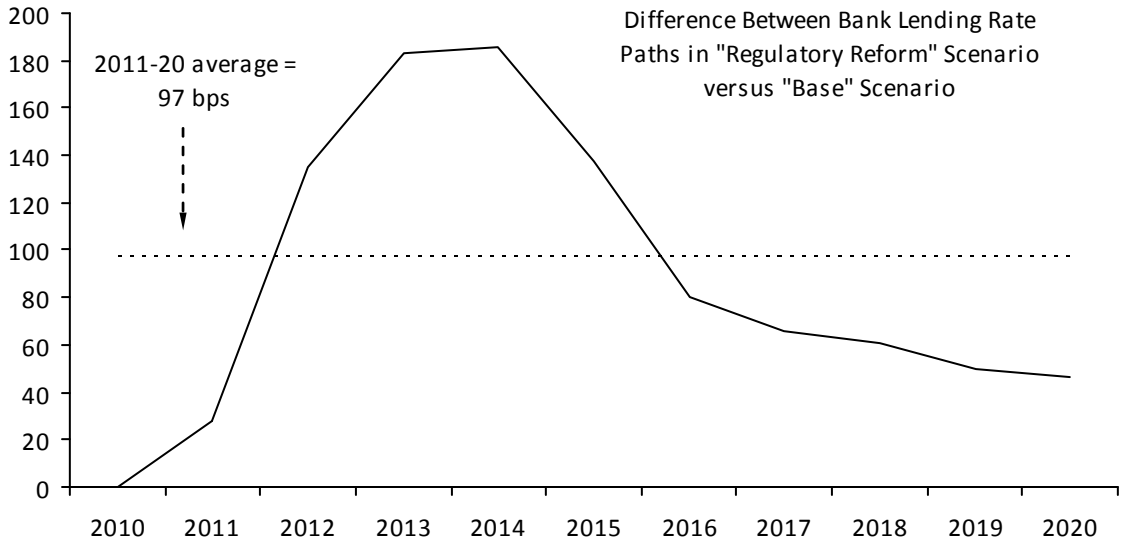


Source: IIF Estimates

Chart 27

Change in Real Lending Rate to Private Sector Borrowers

basis points

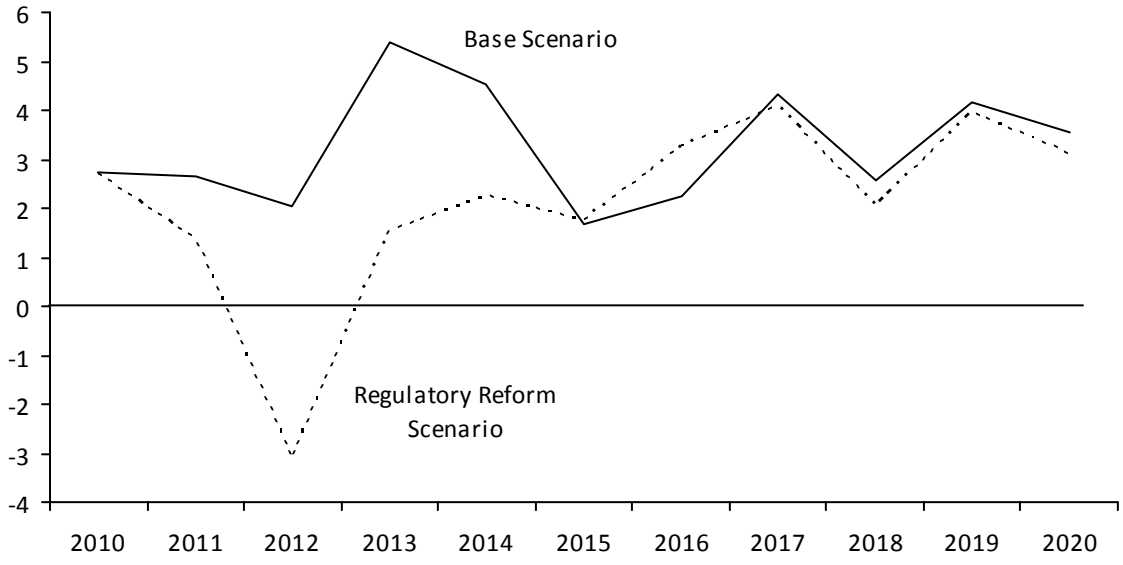


Source: IIF Estimates

Chart 28

Euro Area: Bank Credit to the Private Sector

percent, y/y



Source: IIF Estimates

It is certainly possible that private sector bank lending conditions will not be as weak as we project in a regulatory change scenario. It is also possible that the Euro Area economy will be able to grow with less credit.

Unfortunately, however, it is also possible that the outcome of the regulatory reform scenario for the economy could be bleaker. For one thing, our estimates show that the Euro Area banking system will, in aggregate, fall significantly short of achieving both the 100% Liquidity Coverage Ratio and the 100% Net Stable Funding Ratio in our regulatory change scenario even though that scenario embodies significant lending restraint (Chart 29). If banks were left with no alternative but to achieve these ratios, then there would be little option for them but to impose yet more severe restraint on bank lending to the private sector.

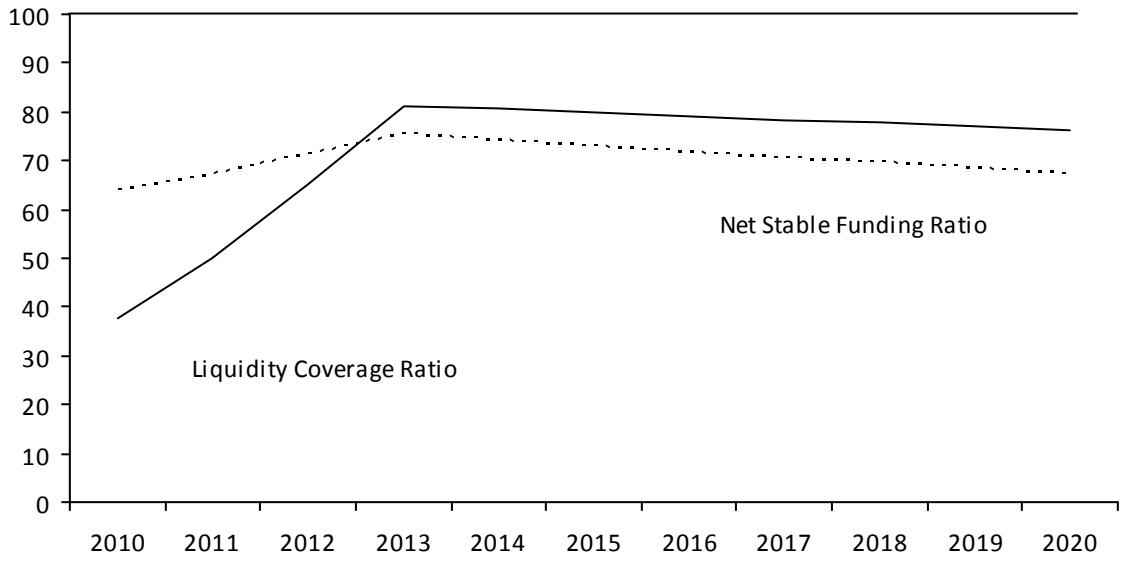
Banking Restraint against a Backdrop of Fiscal Restraint

A second source of downside risk to the economic projections in Table 11 is that the scenario for banking restraint is scheduled to play out at the same time as a significant and widespread effort to lower Euro Area government budget deficits, in an effort to hit the targets of the Stability and Convergence Pact—an effort that has been thrown into heightened significance by the recent turmoil surrounding Greece (Table 12).

Chart 29

Euro Area: Key Liquidity Ratios under Regulatory Reform Scenario

percent



Source: IIF Estimates

Table 12
Stability and Convergence Programs: Government Deficits
percent of GDP

	2009	2010f	2011f	2012f	2013f	2014f
France	7.5	8.2	6.0	4.6	3.0	—
Germany	3.3	5.5	4.5	3.5	3.0	—
Greece	13.6	8.7	5.6	2.8	2.0	—
Ireland	14.3	11.6	10.0	7.2	4.9	2.9
Italy	5.3	5.0	3.9	2.7	—	—
Portugal	9.4	8.3	6.6	4.6	2.8	—
Spain	11.2	9.8	7.5	5.3	3.0	—

Source: European Commission

To an extent, the mandate for banks to boost holdings of liquid assets and improve risk-weighted capital ratios is favoring bank lending to governments and, thus, somewhat reducing the pressure on governments to reduce deficits. In 2009, Euro Area banks' holdings of government debt rose by €238 billion, and we project them to rise by an average of €600 billion *per year* between 2009 and 2014 as banks strive to meet higher liquidity requirements. Of course, this greater allocation of bank lending towards governments crowds out lending to the private sector.

It should be noted that these substantially higher holdings of government debt—which are likely to have a national bias—may add to the riskiness of the banking sector in two important ways. First, it will increase the duration risk of banks, which are likely to want to hold higher yielding government bonds, the value of which could sink as bond yields

rise. Second, and more concerning, banks would be exposing themselves more squarely to the liquidity and solvency risks of Euro Area governments. A year or two ago, that might have seemed a trivial risk, but the recent turmoil in Greek and some other smaller Euro Area government debt markets has served as a graphic reminder that the riskiness of Euro Area government debt may be significantly higher than previously believed[57].

Indeed, the recent sharp ratings downgrade of Greece (and possible downgrades of some other smaller Euro Area countries) raises interesting questions about how the new liquidity framework will handle sovereign ratings migrations. If banks were forced sellers of countries when they had been downgraded, then this could intensify sovereign credit difficulties.

It is also possible that an environment of significant bank lending restraint will also create a situation in which it is very difficult for governments to *achieve* budget deficit reductions. The government budget deficit is the mirror image of the financial imbalances of the private sector and external sector (Chart 30). Since 2007, the sharp rise in the budget deficit has had its main counterpart in a rise in the saving-investment surplus of the private sector—mainly as a result of the collapse in credit-driven investment spending. The Euro Area could engineer a massive swing in its external surplus, thus helping to reduce the budget deficit without a rise in domestic private investment relative to private saving. This would seem to be an unlikely development, however, absent a massive decline in the Euro. If this occurred, it could spark tensions between the Euro Area and some of its trading partners.

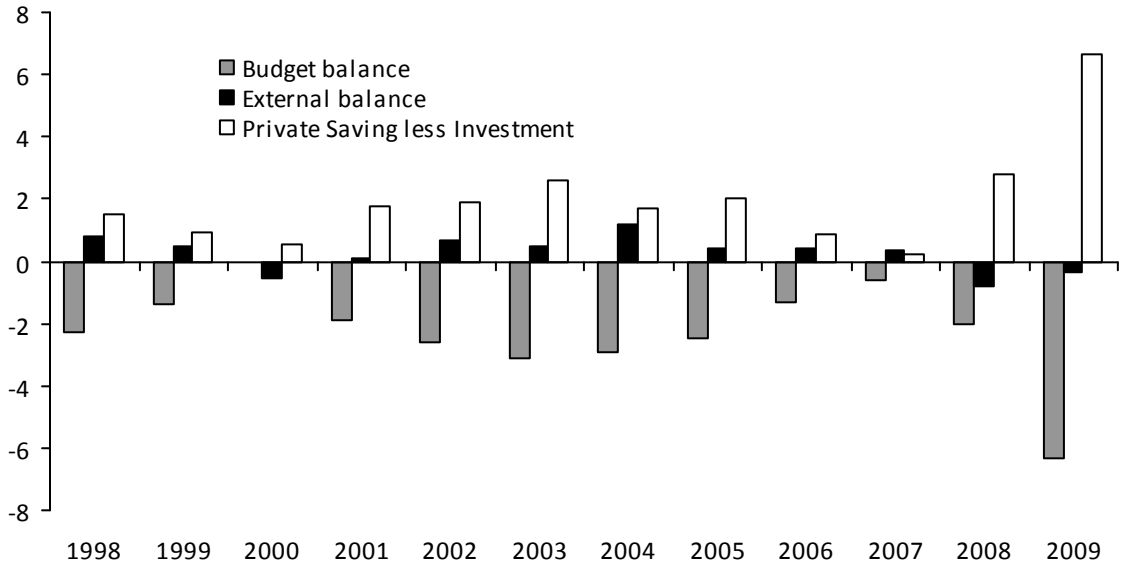
It is more likely, therefore, that any meaningful budget deficit reduction will be difficult without a reduction in the private sector financial surplus—i.e., a revival in private investment and/or reduction in private saving. It is difficult to see this happening without the Euro Area private sector feeling comfortable about increasing, rather than reducing its leverage and, absent the sudden creation of significant non-bank means of debt intermediation, this would require a revival in bank lending activity.

[57] This is, of course, an uncanny replay of the conditions which developed in the structured credit market in 2006-07, when previously highly-rated (and low spread) product slumped in value as perceptions of the creditworthiness of the underlying borrower shifted dramatically.

Chart 30

Euro Area Sector Imbalances

percent of GDP



Source: Eurostat

Cross-Border Lending Issues

A final source of downside risk relates to the external environment. In 2007-08, Euro Area growth was reduced by extreme weakness in Emerging Europe. Rapid growth in Emerging Europe had been an important source of buoyancy for the Euro Area in 2004-07, so the sudden reversal in fortunes for Emerging Europe was a blow to the West.

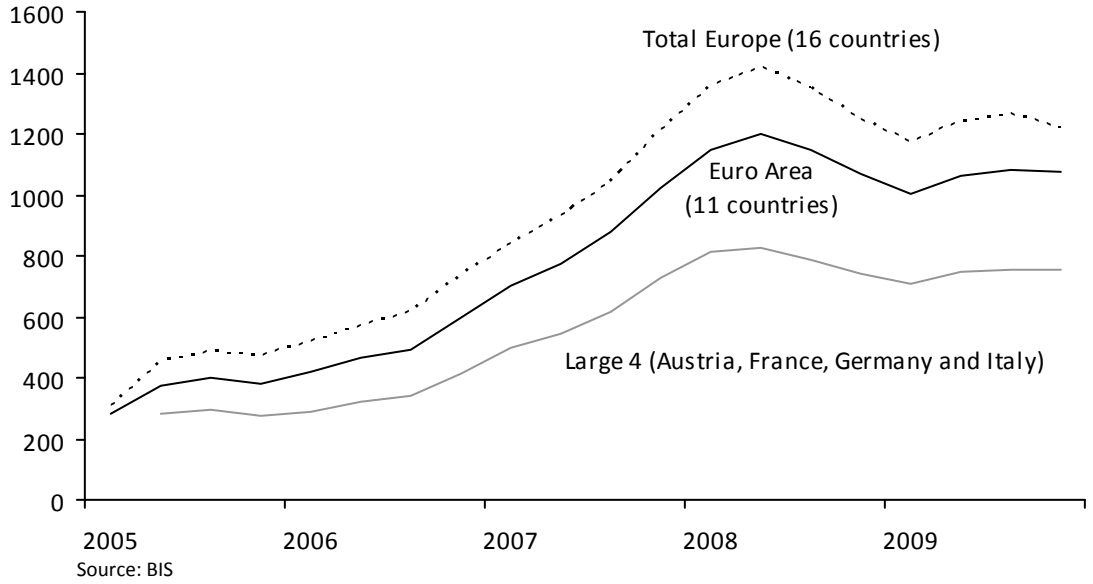
A contraction in credit flows from west to east was an important mechanism through which the subprime crises rippled through Emerging Europe. According to IIF estimates, net bank lending to eight large borrowing countries in Emerging Europe shifted from an *inflow* of $172 billion in 2007 to an *outflow* of $47 billion in 2009[58].

Emerging European countries were able to stabilize themselves quite well in 2009, however. In part, this reflected impressive policy adjustments in Emerging European economies, often helped by support from official creditors (especially the IMF). Emerging European stabilization was also helped by the commitment of many commercial banks based in the Euro Area to maintain strong support for local affiliates operating in Emerging European economies. Having fallen sharply between the middle

[58] See Suttle et al. (2010a). The 8 countries are Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, Turkey and Ukraine. Excluding Russia, there were net *inflows* of $106 billion in 2007 and net *outflows* of $26 billion in 2009.

of 2008 and the early months of 2009, the consolidated claims of Euro Area banks on Emerging Europe began to rise again early in 2009 (Chart 31)[59].

Chart 31
Consolidated Foreign Claims on Emerging Europe
$ billion, end of period



Source: BIS

As is well known, Austrian banks have disproportionately large exposure to Emerging Europe, mainly through the local lending activity of foreign affiliates (Chart 32). Other Euro Area countries with large absolute exposures include France, Germany and Italy. Greek banks also have relatively large exposures in Emerging Europe.

There must be some concern that the full imposition of the Basel III proposals would add a new negative twist to bank credit flows to Emerging Europe in the years ahead. Restraint could operate through two channels:

- The increase in capital requirement would imply greater charges allocated to credit extended to lower rated credits in Emerging Europe;
- Maintaining operations in Emerging Europe with minority interests from local partners would become more expensive.

The main concern is how the new regulations will affect the parent banks in the Euro Area and their ability to continue to provide funding to Emerging European affiliates. There is general understanding that foreign funding from parent banks will be much

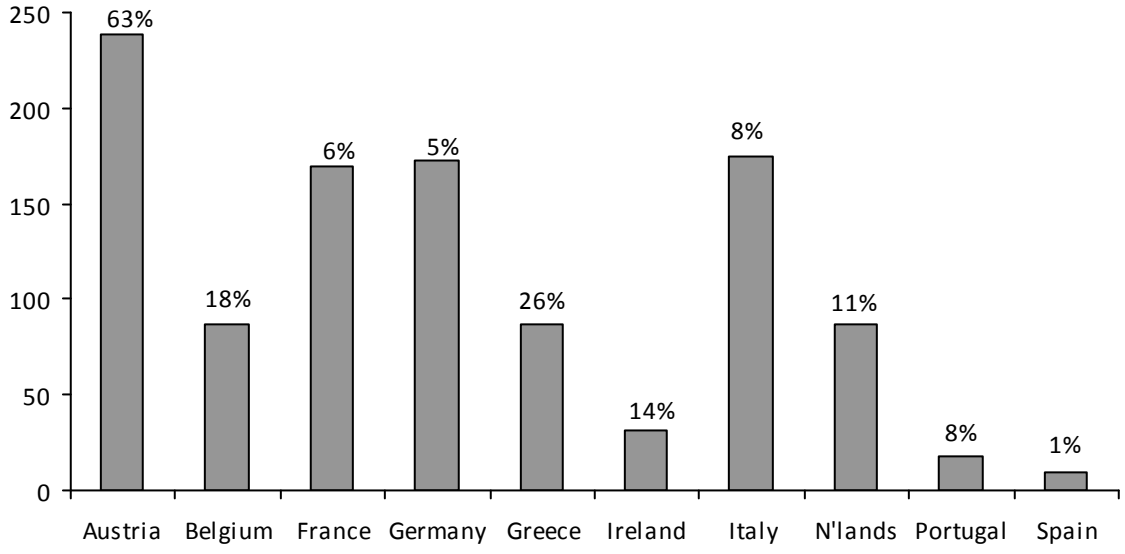
[59] Note that Chart 35 shows the consolidated foreign claims of Euro Area banks on an ultimate risk basis (Table 9D, BIS (2010)). This measure includes both cross-border claims and local claims (in both foreign and local currency) of foreign affiliates.

more restricted than in the past and that, as a result, affiliates will have to increase reliance on local funding sources, mainly deposits.

Chart 32

Consolidated Foreign Claims on Emerging Europe, by Nationality of Bank

$ billion, December 2009 (numbers above bars reflect % GDP)



Source: BIS

Appendix: Euro Area Data Sources

Type of Data	Sources
Balance Sheet	European Central Bank - Aggregated balance sheet of Euro Area monetary financial institutions, excluding the Eurosystem http://www.ecb.int/stats/money/aggregates/bsheets/html/outstanding_amounts_2010-03.en.html Liabilities of Eurosystem to Euro Area credit institutions related to monetary policy operations are used as a proxy for cash: Consolidated financial statement of the Eurosystem http://www.ecb.int/press/pr/wfs/2010/html/fs100302.en.html BIS Quarterly Review, Table 9B Consolidated foreign claims by nationality of reporting banks, immediate borrower basis http://www.bis.org/statistics/consstats.htm
Capital	Estimated the composition of regulatory capital by using the capital ratios for Euro Area large and complex banking groups based on ECB Financial Stability Review 2004 – 2009 http://www.ecb.int/pub/fsr/html/index.en.html
P&L Model	OECD Bank Profitability Statistics http://stats.oecd.org/Index.aspx?DataSetCode=BPF1
Macroeconomic Data	Eurostat European Central Bank - Monthly Bulletins OECD Economic Outlook 86 database

Euro Area: Base Scenario

EUR billion

Projection period

		2005	2006		2007	2008	2009	2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank Balance Sheet Model																			
				Current risk-weighting					*No new risk-weighting*										
Bank Assets		23634	25945		29440	31837	31147	31546		31994	32346	33303	34150	34474	34918	35795	36339	37245	38047
LIQ	Cash	156	174	*0%*	379	456	369	347	*0%*	336	323	333	342	345	349	358	363	372	380
GOV	Government bonds	1432	1279	*5%*	1197	1245	1483	1546	*5%*	1584	1617	1665	1708	1724	1746	1790	1817	1862	1902
LIQ/TA	Liquid asset ratio	6.7%	5.6%		5.4%	5.3%	5.9%	**6.0%**		**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**
IB	Domestic financial	7996	8612		9966	10835	10657	10600		10600	10600	10600	10600	10600	10600	10600	10600	10600	10600
IB (TB)	Trading Book	652	732	*10%*	896	1016	1015	1000	*10%*	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
IB (BB)	Banking Book	7344	7880	*25%*	9070	9820	9642	9600	*25%*	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600
CORP	Domestic non-financial	4656	5285		6212	7012	6996	7188		7379	7528	7934	8294	8432	8620	8992	9224	9608	9949
CORP (TB)	Trading Book	552	646	*25%*	953	1407	1498	1539	*25%*	1400	1350	1350	1350	1350	1350	1350	1350	1350	1350
CORP (BB)	Banking Book	4105	4639	*100%*	5259	5606	5498	5649	*100%*	5979	6178	6584	6944	7082	7270	7642	7874	8258	8599
	%oya	7.7	13.0		13.4	6.6	-1.9	2.8		5.8	3.3	6.6	5.5	2.0	2.7	5.1	3.0	4.9	4.1
HH	Household	4182	4523		4796	4889	4955	5092		5227	5332	5620	5875	5972	6106	6370	6533	6806	7047
MORT	Mortgages	2911	3203	*50%*	3429	3490	3550	3750	*50%*	3750	3760	3780	3790	3800	3850	3900	3950	4000	4000
CC	Other	1271	1320	*50%*	1367	1398	1405	1342	*50%*	1477	1572	1840	2085	2172	2256	2470	2583	2806	3047
EXTA	External	3656	4337		4879	4754	4264	4319		4380	4429	4560	4676	4720	4781	4901	4975	5099	5209
EXTA (HG)	High-grade	2815	3339	*25%*	3756	3501	3096	3136	*25%*	3180	3215	3310	3395	3427	3471	3558	3612	3702	3782
EXTA (EM)	Risky (EM)	841	998	*100%*	1122	1253	1168	1183	*100%*	1200	1213	1249	1281	1293	1310	1343	1363	1397	1427
	Fixed Assets	166	173	*100%*	206	212	219	222	*100%*	225	228	235	241	243	246	252	256	262	268
	Other Assets	1391	1563	*100%*	1806	2435	2204	2232	*100%*	2263	2288	2356	2416	2439	2470	2532	2571	2635	2692
RWA	Risk-weighted assets	12699	14134		14385	15795	15302	15579		16006	16296	16984	17591	17824	18142	18772	19162	19812	20388
	RWA/Total Assets	54%	54%		49%	50%	49%												
Bank Liabilities		22319	24491		27757	30070	29231	29555		29957	30254	31165	31959	32223	32637	33483	34000	34870	35663
M1	Retail	7374	8026		8994	9881	10160	10384		10637	10902	11380	11824	12094	12410	12879	13239	13728	14187
M2	Domestic financial	5547	5938		6842	7686	7040	7195		7371	7555	7886	8193	8380	8599	8924	9174	9513	9831
M3	Wholesale (non-capital)	3844	4234		4631	4848	4920	4708		4503	4166	3934	3666	3283	2942	2666	2320	2020	1714
	Short-term (<1 year)	357	427		597	633	496	475		454	420	397	370	331	297	269	234	204	173
	Long-term (> 1 year)	3487	3806		4034	4215	4424	4234		4049	3746	3537	3297	2952	2645	2397	2086	1817	1541
EXTL	External	3526	3991		4538	4403	4098	4188		4291	4398	4590	4769	4878	5006	5195	5340	5537	5723
	Other Liabilities	2027	2302		2751	3252	3013	3080		3155	3233	3375	3507	3587	3680	3820	3926	4071	4208
Capital		1315	1454		1684	1767	1915	1991		2038	2092	2138	2191	2252	2281	2312	2340	2375	2385
T2	Tier II	385	452		417	475	465	465		465	465	465	475	500	500	500	500	525	525
T1	Tier I	1031	1134		1109	1358	1443	1493		1540	1594	1641	1684	1719	1748	1780	1807	1817	1827
TCE	Core	876	963		943	1155	1227	1272		1313	1362	1398	1432	1461	1484	1505	1525	1525	1525
T1-TCE	Non-core	155	170		166	204	216	221		227	232	242	252	258	264	274	282	292	302
REGCAP	Regulatory	1416	1586		1526	1834	1908	1958		2005	2059	2106	2159	2219	2248	2280	2307	2342	2352
REGADJ	Regulatory Adjustments	-101	-132		157	-66	7	33		33	33	33	33	33	33	33	33	33	33
Key Capital ratios																			
REGCAP/RWA	Regulatory Capital	11.2%	11.2%		10.6%	11.6%	12.5%	12.6%		12.5%	12.6%	12.4%	12.3%	12.4%	12.4%	12.1%	12.0%	11.8%	11.5%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*		*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***
BUFCAP	National buffer (%pts)	3.2%	3.2%		2.6%	3.6%	4.5%	4.6%		4.5%	4.6%	4.4%	4.3%	4.4%	4.4%	4.1%	4.0%	3.8%	3.5%
T1/RWA	Tier I	8.1%	8.0%		7.7%	8.6%	9.4%	9.6%		9.6%	9.8%	9.7%	9.6%	9.6%	9.6%	9.5%	9.4%	9.2%	9.0%
TCE/RWA	Core Tier I	6.9%	6.8%		6.6%	7.3%	8.0%	8.2%		8.2%	8.4%	8.2%	8.1%	8.2%	8.2%	8.0%	8.0%	7.7%	7.5%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*		*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***
BUFCAP (T1)	National buffer (%pts)	4.1%	4.0%		3.7%	4.6%	5.4%	5.6%		5.6%	5.8%	5.7%	5.6%	5.6%	5.6%	5.5%	5.4%	5.2%	5.0%
	Required buffer	4.4%	4.4%		4.4%	4.4%	4.4%	4.4%		4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
LEVRAT	Leverage ratio	16.7	16.4		19.3	17.4	16.3	16.1		16.0	15.7	15.8	15.8	15.5	15.5	15.7	15.8	15.9	16.2

Euro Area: Base Scenario

EUR billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						35.3	34.4	33.9	33.5	33.2	32.9	32.6	32.3	32.0	31.7	31.4
	Net stable funding ratio						63.3	62.1	61.0	59.7	58.5	57.5	56.5	55.4	54.4	53.3	52.2
	Cash/Assets	0.66%	0.67%	1.29%	1.43%	1.18%	1.10%	1.05%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Bank Core Capital Supply Model																	
Total new Core Capital							46	41	48	36	34	30	22	21	20	0	0
NEWTCE	Required new issuance						0	0	0	0	0	0	0	0	0	0	0
RROE	Core equity shadow price						17.7%	12.2%	11.4%	10.2%	7.8%	8.5%	9.8%	8.9%	8.6%	9.5%	8.4%
REDEF	Redefinition effects						0	0	0	0	0	0	0	0	0	0	0
PROFRET	Retained income						46	41	48	36	34	30	22	21	20	0	0
PROFRET/PR	% of profits retained						40%	30%	25%	15%	15%	15%	10%	10%	10%	0%	0%
Banking Sector P&L Model																	
Interest earnings		903	1082	1352	1235	899	946	1014	1161	1178	1234	1311	1373	1376	1442	1428	1453
	Cash	3	5	11	16	5	4	4	5	5	6	7	8	9	10	10	10
FFUNDS	10yr bond yield	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
	Government bonds	46	51	52	49	45	47	55	64	66	67	69	69	66	68	64	66
BOND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Domestic financial	199	307	445	349	102	127	146	184	184	208	232	256	278	302	299	299
	Trading Book	22	26	34	38	33	31	35	40	40	40	40	40	38	38	35	35
BOND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Banking Book	178	280	411	311	69	96	111	144	144	168	192	216	240	264	264	264
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (BANK)	Yield curve spread	-0.91%	-0.10%	0.62%	-0.70%	-2.55%	-2.10%	-2.34%	-2.50%	-2.50%	-2.25%	-2.00%	-1.75%	-1.25%	-1.00%	-0.75%	-0.75%
	Domestic non-financial	189	233	304	348	378	365	377	420	425	435	462	482	477	498	498	509
	Trading Book	22	28	42	62	78	78	76	77	74	72	75	76	73	74	71	70
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (CORP)	**Lending spread**	0.86%	0.90%	1.05%	1.27%	**2.13%**	**2.04%**	**1.68%**	**1.63%**	**1.49%**	**1.36%**	**1.53%**	**1.65%**	**1.67%**	**1.72%**	**1.79%**	**1.70%**
	Banking Book	168	205	261	286	300	287	301	342	350	363	388	406	404	424	427	438
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (CORP)	Lending spread	0.86%	0.90%	1.05%	1.27%	2.13%	2.04%	1.68%	1.63%	1.49%	1.36%	1.53%	1.65%	1.67%	1.72%	1.79%	1.70%
	Household	162	207	250	256	210	258	267	297	301	308	327	341	338	353	353	360
	Mortgages	109	147	179	183	134	188	194	211	207	203	210	216	210	215	210	208
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	0.60%	1.02%	1.17%	1.30%	0.54%	2.04%	1.68%	1.63%	1.49%	1.36%	1.53%	1.65%	1.67%	1.72%	1.79%	1.70%
	Other	53	61	71	73	76	71	73	86	94	105	118	125	128	138	143	152
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	0.86%	0.90%	1.05%	1.27%	2.13%	2.04%	1.68%	1.63%	1.49%	1.36%	1.53%	1.65%	1.67%	1.72%	1.79%	1.70%
	Real borrowing rate	**2.29%**	**2.68%**	**2.91%**	**3.12%**	**4.30%**	**3.94%**	**3.81%**	**4.12%**	**3.47%**	**3.06%**	**3.47%**	**3.71%**	**3.36%**	**3.51%**	**3.21%**	**3.08%**
	External	171	193	229	216	159	145	164	191	198	210	214	216	208	212	204	209
	High grade	86	116	150	145	108	97	111	128	131	134	136	138	132	134	128	131
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Risky (EM)	85	77	79	71	52	48	54	63	68	76	77	78	76	78	76	78
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (EXTA)	Lending spread	7.82%	4.56%	3.22%	2.00%	1.00%	1.00%	1.00%	1.20%	1.50%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Implied Interest Earnings	771	996	1291	1235	899											
ECB	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
BUND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
Interest expenses		622	789	1041	929	509	615	657	734	732	786	857	902	953	1015	1018	1031
	Retail	129	199	311	347	105	82	101	140	145	180	239	276	316	359	371	384
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM1	Spread over official	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Domestic financial	151	203	294	336	147	125	139	168	174	201	228	255	285	317	327	339

Euro Area: Base Scenario

EUR billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM2	Spread over official	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	Wholesale (non-capital)	209	234	303	298	262	263	269	274	256	241	221	199	174	155	130	112
	Short-term	11	15	25	30	13	10	10	11	10	11	11	10	10	9	8	7
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM3	Spread over official	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Long-term	199	219	278	268	249	253	259	263	246	231	211	189	164	146	122	105
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
RATEM4	Spread over official	2.61%	2.22%	2.87%	2.50%	2.50%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%
	External	146	168	149	134	128	145	148	152	157	164	169	173	179	184	190	197
RATEEXTL	Average interest rate	4.60%	4.47%	3.49%	3.00%	3.00%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
	Implied Interest Expense	635	803	1057	1116	642											
Net interest earnings		281	294	311	306	391	331	356	427	446	449	454	470	423	427	410	421
OOE	Other earnings	237	296	291	254	270	276	282	289	302	314	321	329	342	351	364	377
NIC	Non-interest costs	337	357	373	347	354	354	356	358	366	373	374	376	383	386	393	398
Operating profits (pre-credit losses)		182	233	229	214	307	253	283	359	382	389	400	423	382	392	382	400
CREDLOS	Credit Losses (-)	-30	-37	-48	-218	-245	-110	-111	-116	-80	-108	-154	-143	-113	-147	-125	-144
Income before tax		152	196	181	-5	61	143	172	242	302	281	246	280	269	245	257	256
	Tax	30	35	28	0	12	29	34	48	60	56	49	56	54	49	51	51
Net Income		122	161	153	-4	49	114	137	194	242	225	197	224	215	196	205	205
ROE	Return on Equity	9.65%	11.63%	9.74%	-0.22%	2.65%	5.84%	6.82%	9.39%	11.42%	10.38%	8.86%	9.88%	9.36%	8.43%	8.71%	8.60%
ROA	Return on Assets	0.54%	0.65%	0.55%	-0.01%	0.16%	0.36%	0.43%	0.60%	0.74%	0.67%	0.57%	0.65%	0.61%	0.54%	0.56%	0.54%
Macroeconomic Framework																	
Nominal GDP growth		3.8	5.1	5.2	2.8	-3.0	2.2	2.4	2.5	4.4	3.9	2.3	2.6	3.8	2.8	3.7	3.3
	Residual						*-0.7*	*-0.4*									
RGDPG	Real growth	1.8	3.1	2.8	0.5	-4.0	1.0	1.1	1.0	2.3	1.6	0.2	0.7	1.7	0.8	1.6	1.2
PGDPG	GDP deflator	2.0	2.0	2.4	2.2	1.1	1.2	1.4	1.5	2.0	2.3	2.1	1.9	2.1	2.0	2.1	2.1
	Output gap	-0.5	1.0	1.9	0.7	-4.5	-4.3	-3.5	-2.8	-0.4	0.9	-0.3	-0.8	-0.3	-0.7	-0.1	0.1
	Employment (thousands)	136958	139705	142478	144188	141860	141238	142471	143678	145721	147808	148766	149511	151109	152542	154163	155835
	%oya	2.4	2.0	2.0	1.2	-1.6	-0.4	0.9	0.8	1.4	1.4	0.6	0.5	1.1	0.9	1.1	1.1
Risk-weighted %oya		11.5	11.3	1.8	9.8	-3.1	1.8	2.7	1.8	4.2	3.6	1.3	1.8	3.5	2.1	3.4	2.9
Bank assets		23634	25945	29440	31837	31147	31546	31994	32346	33303	34150	34474	34918	35795	36339	37245	38047
	%oya	10.7	9.8	13.5	8.1	-2.2	1.3	1.4	1.1	3.0	2.5	0.9	1.3	2.5	1.5	2.5	2.2
	%GDP	290.3	303.2	326.9	343.8	346.6	343.5	340.1	335.5	330.9	326.6	322.3	318.2	314.3	310.4	306.8	303.3
Bank credit to private sector		8838	9807	11008	11901	11951	12280	12605	12860	13555	14169	14404	14726	15362	15757	16413	16996
	%oya	9.3	11.0	12.2	8.1	0.4	2.8	2.6	2.0	5.4	4.5	1.7	2.2	4.3	2.6	4.2	3.5
	%GDP	108.6	114.6	122.2	128.5	133.0	133.7	134.0	133.4	134.7	135.5	134.7	134.2	134.9	134.6	135.2	135.5
Nonbank credit to private sector		2037	2153	2139	2217	2327	2443	2562	2680	2849	3015	3148	3296	3485	3655	3862	4069
	%oya	3.9	5.7	-0.6	3.7	5.0	5.0	4.9	4.6	6.3	5.8	4.4	4.7	5.7	4.9	5.7	5.4
	%GDP	25.0	25.2	23.8	23.9	25.9	26.6	27.2	27.8	28.3	28.8	29.4	30.0	30.6	31.2	31.8	32.4
Private sector	(EUR billion)	10874	11960	13147	14118	14278	14723	15168	15540	16403	17184	17552	18022	18847	19412	20276	21065
	%oya	8.2	10.0	9.9	7.4	1.1	3.1	3.0	2.5	5.6	4.8	2.1	2.7	4.6	3.0	4.4	3.9
Nominal GDP		8141	8558	9006	9259	8985	9183	9407	9641	10064	10456	10695	10975	11389	11708	12140	12546

Euro Area: Regulatory Change Scenario

EUR billion

Projection period

		2005	2006		2007	2008	2009	2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank Balance Sheet Model				*Current risk-weighting*					*New risk-weighting*										
Bank Assets		23634	25945		29440	31837	31147	31758		33002	33734	35414	35860	36218	36956	37881	38408	39364	40166
LIQ	Cash	156	174	*0%*	379	456	369	397	*0%*	462	506	708	807	905	924	947	960	984	1004
GOV	Government bonds	1432	1279	*5%*	1197	1245	1483	1667	*5%*	2508	3542	4604	4572	4527	4619	4735	4801	4921	5021
LIQ/TA	Liquid asset ratio	6.7%	5.6%		5.4%	5.3%	5.9%	**6.5%**		**9.0%**	**12.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**	**15.0%**
IB	Domestic financial	7996	8612		9966	10835	10657	10600		10600	10600	10600	10550	10500	10500	10500	10500	10500	10500
IB (TB)	Trading Book	652	732	*10%*	896	1016	1015	1000	*30%*	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
IB (BB)	Banking Book	7344	7880	*25%*	9070	9820	9642	9600	*25%*	9600	9600	9600	9550	9500	9500	9500	9500	9500	9500
CORP	Domestic non-financial	4656	5285		6212	7012	6996	7185		7283	7057	7166	7328	7456	7701	8015	8179	8503	8768
CORP (TB)	Trading Book	552	646	*25%*	953	1407	1498	1538	*75%*	1400	1350	1350	1350	1350	1350	1350	1350	1350	1350
CORP (BB)	Banking Book	4105	4639	*100%*	5259	5606	5498	5647	*100%*	5883	5707	5816	5978	6106	6351	6665	6829	7153	7418
	%oya	7.7	13.0		13.4	6.6	-1.9	2.7		4.2	-3.0	1.9	2.8	2.1	4.0	4.9	2.5	4.7	3.7
HH	Household	4182	4523		4796	4889	4955	5090		5159	4999	5076	5191	5282	5455	5677	5794	6023	6210
MORT	Mortgages	2911	3203	*50%*	3429	3490	3550	3750	*50%*	3750	3700	3700	3750	3800	3850	3900	3950	4000	4000
CC	Other	1271	1320	*50%*	1367	1398	1405	1340	*50%*	1409	1299	1376	1441	1482	1605	1777	1844	2023	2210
EXTA	External	3656	4337		4879	4754	4264	4348		4423	4406	4504	4622	4730	4882	5060	5186	5372	5538
EXTA (HG)	High-grade	2815	3339	*25%*	3756	3501	3096	3157	*25%*	3273	3256	3354	3472	3580	3707	3860	3961	4122	4263
EXTA (EM)	Risky (EM)	841	998	*100%*	1122	1253	1168	1191	*100%*	1150	1150	1150	1150	1150	1175	1200	1225	1250	1275
	Fixed Assets	166	173	*100%*	206	212	219	224	*100%*	232	238	249	253	255	260	267	271	277	283
	Other Assets	1391	1563	*100%*	1806	2435	2204	2247	*100%*	2335	2387	2505	2537	2562	2614	2680	2717	2785	2842
RWA	Risk-weighted assets	12699	14134		14385	15795	15302	15611		16874	16685	17043	17312	17525	17975	18542	18859	19442	19929
	RWA/Total Assets	54%	54%		49%	50%	49%												
Bank Liabilities		22319	24491		27757	30070	29231	29765		30888	31517	33064	33369	33629	34288	35145	35608	36544	37293
M1	Retail	7374	8026		8994	9881	10160	10381		10560	10519	10754	11036	11294	11655	12080	12382	12825	13223
M2	Domestic financial	5547	5938		6842	7686	7040	7193		7317	7289	7452	7647	7826	8076	8371	8580	8887	9163
M3	Wholesale (non-capital)	3844	4234		4631	4848	4920	4924		5620	6345	7331	6961	6603	6399	6239	5979	5856	5652
	Short-term (<1 year)	357	427		597	633	496	496		400	400	400	400	400	400	400	400	400	400
	Long-term (> 1 year)	3487	3806		4034	4215	4424	4427		5220	5945	6931	6561	6203	5999	5839	5579	5456	5252
EXTL	External	3526	3991		4538	4403	4098	4187		4259	4243	4338	4452	4556	4701	4873	4995	5173	5334
	Other Liabilities	2027	2302		2751	3252	3013	3079		3132	3120	3189	3273	3350	3457	3583	3672	3804	3922
Capital		1315	1454		1684	1767	1915	1993		2114	2217	2350	2491	2590	2667	2736	2800	2820	2872
T2	Tier II	385	452		417	475	465	465		465	525	585	645	645	600	550	500	465	465
T1	Tier I	1031	1134		1109	1358	1443	1495		1616	1659	1732	1813	1912	2035	2154	2267	2322	2375
TCE	Core	876	963		943	1155	1227	1274		1391	1435	1503	1578	1671	1786	1896	2003	2049	2093
T1-TCE	Non-core	155	170		166	204	216	221		225	224	229	235	241	248	257	264	273	282
REGCAP	Regulatory	1416	1586		1526	1834	1908	1960		2081	2184	2317	2458	2557	2635	2704	2767	2787	2840
REGADJ	Regulatory Adjustments	-101	-132		157	-66	7	33		33	33	33	33	33	33	33	33	33	33
Key Capital ratios																			
REGCAP/RWA	Regulatory Capital	11.2%	11.2%		10.6%	11.6%	12.5%	12.6%		12.3%	13.1%	13.6%	14.2%	14.6%	14.7%	14.6%	14.7%	14.3%	14.2%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*		*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***10.0%***	***10.0%***	***10.0%***	***11.0%***	***11.0%***	***11.0%***	***10.0%***	***10.0%***	***10.0%***
BUFCAP	National buffer (%pts)	3.2%	3.2%		2.6%	3.6%	4.5%	4.6%		4.3%	3.1%	3.6%	4.2%	3.6%	3.7%	3.6%	4.7%	4.3%	4.2%
T1/RWA	Tier I	8.1%	8.0%		7.7%	8.6%	9.4%	9.6%		9.6%	9.9%	10.2%	10.5%	10.9%	11.3%	11.6%	12.0%	11.9%	11.9%
TCE/RWA	Core Tier I	6.9%	6.8%		6.6%	7.3%	8.0%	8.2%		8.2%	8.6%	8.8%	9.1%	9.5%	9.9%	10.2%	10.6%	10.5%	10.5%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*		*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***6.0%***	***6.0%***	***6.0%***	***7.0%***	***7.0%***	***7.0%***	***6.0%***	***6.0%***	***6.0%***
BUFCAP (T1)	National buffer (%pts)	4.1%	4.0%		3.7%	4.6%	5.4%	5.6%		5.6%	3.9%	4.2%	4.5%	3.9%	4.3%	4.6%	6.0%	5.9%	5.9%
	Required buffer	4.4%	4.4%		4.4%	4.4%	4.4%	4.4%		4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
LEVRAT	Leverage ratio	16.7	16.4		19.3	17.4	16.3	16.2		15.9	15.4	15.3	14.6	14.2	14.0	14.0	13.9	14.1	14.1

Euro Area: Regulatory Change Scenario

EUR billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						37.7	49.9	65.2	81.3	80.6	79.8	79.1	78.4	77.7	77.0	76.4
	Net stable funding ratio						64.0	67.2	71.4	75.5	74.2	73.0	71.8	70.6	69.5	68.3	67.3
	Cash/Assets	0.66%	0.67%	1.29%	1.43%	1.18%	1.25%	1.40%	1.50%	2.00%	2.25%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Bank Core Capital Supply Model																	
Total new Core Capital							48	117	44	68	75	94	115	110	107	45	44
NEWTCE	Required new issuance						0	50	50	50	50	0	0	0	0	0	0
RROE	Core equity shadow price						17.7%	12.2%	15.6%	17.2%	15.6%	15.1%	13.9%	13.2%	12.7%	12.5%	10.2%
REDEF	Redefinition effects						0	0	-60	-60	-60	0	0	0	0	0	0
PROFRET	Retained income						48	67	54	78	85	94	115	110	107	45	44
PROFRET/PR	% of profits retained						40%	65%	65%	65%	65%	65%	65%	65%	65%	25%	25%
Banking Sector P&L Model																	
Interest earnings		903	1082	1352	1235	898	948	1051	1289	1352	1420	1463	1501	1505	1563	1527	1541
	Cash	3	5	11	16	5	4	5	7	9	13	17	21	23	26	27	27
FFUNDS	10yr bond yield	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
	Government bonds	46	51	52	49	45	49	73	121	163	184	182	183	175	179	170	174
BOND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Domestic financial	199	307	445	349	102	127	146	184	184	208	231	254	275	299	296	296
	Trading Book	22	26	34	38	33	31	35	40	40	40	40	40	38	38	35	35
BOND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Banking Book	178	280	411	311	69	96	111	144	144	168	191	214	238	261	261	261
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (BANK)	Yield curve spread	-0.91%	-0.10%	0.62%	-0.70%	-2.55%	-2.10%	-2.34%	-2.50%	-2.50%	-2.25%	-2.00%	-1.75%	-1.25%	-1.00%	-0.75%	-0.75%
	Domestic non-financial	189	233	304	348	377	365	387	460	468	474	482	485	481	494	483	484
	Trading Book	22	28	42	62	78	78	79	88	89	88	88	86	83	82	78	76
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (CORP)	**Lending spread**	0.86%	0.90%	1.05%	1.27%	**2.12%**	**2.04%**	**1.85%**	**2.42%**	**2.59%**	**2.54%**	**2.52%**	**2.40%**	**2.37%**	**2.35%**	**2.28%**	**2.11%**
	Banking Book	168	205	261	286	299	287	309	372	380	386	394	399	398	411	404	409
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (CORP)	Lending spread	0.86%	0.90%	1.05%	1.27%	2.12%	2.04%	1.85%	2.42%	2.59%	2.54%	2.52%	2.40%	2.37%	2.35%	2.28%	2.11%
	Household	162	207	250	256	210	258	274	326	332	336	341	344	340	350	342	343
	Mortgages	109	147	179	183	134	188	201	239	244	244	246	245	237	239	230	224
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	0.60%	1.02%	1.17%	1.30%	0.54%	2.04%	1.85%	2.42%	2.59%	2.54%	2.52%	2.40%	2.37%	2.35%	2.28%	2.11%
	Other	53	61	71	73	76	71	74	87	88	92	95	99	103	110	112	119
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (HH)	Lending spread	0.86%	0.90%	1.05%	1.27%	2.12%	2.04%	1.85%	2.42%	2.59%	2.54%	2.52%	2.40%	2.37%	2.35%	2.28%	2.11%
	Real borrowing rate	**2.29%**	**2.68%**	**2.91%**	**3.12%**	**4.29%**	**3.95%**	**4.09%**	**5.46%**	**5.29%**	**4.91%**	**4.84%**	**4.52%**	**4.02%**	**4.12%**	**3.70%**	**3.54%**
	External	171	193	229	216	159	145	165	190	195	206	210	215	210	216	210	216
	High grade	86	116	150	145	108	97	113	131	132	137	141	146	142	147	141	147
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
	Risky (EM)	85	77	79	71	52	48	53	60	63	69	69	70	68	70	68	69
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
SPREAD (EXTA)	Lending spread	7.82%	4.56%	3.22%	2.00%	1.00%	1.00%	1.00%	1.20%	1.50%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Implied Interest Earnings	771	996	1291	1235	898											
ECB	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
BUND	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
Interest expenses		622	789	1041	929	508	621	743	972	1063	1132	1162	1189	1220	1265	1249	1267
	Retail	129	199	311	347	105	82	121	184	186	218	251	287	326	367	378	391
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM1	Spread over official	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	0.00%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
	Domestic financial	151	203	294	336	147	125	139	164	166	189	213	239	267	297	306	316

Euro Area: Regulatory Change Scenario

EUR billion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM2	Spread over official	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	Wholesale (non-capital)	209	234	303	298	262	269	335	475	561	572	541	502	459	429	387	376
	Short-term	11	15	25	30	13	10	10	14	14	15	14	14	15	15	15	15
	Key policy rate	2.02%	2.78%	3.85%	3.88%	1.25%	1.00%	1.16%	1.50%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	2.75%	2.75%
RATEM3	Spread over official	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	2.00%	2.00%	2.00%	1.50%	1.25%	1.25%	1.00%	1.00%	1.00%
	Long-term	199	219	278	268	249	259	326	461	547	557	527	488	444	414	372	361
	10yr bond yield	3.38%	3.78%	4.23%	4.00%	3.27%	3.10%	3.50%	4.00%	4.00%	4.00%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%
RATEM4	Spread over official	2.61%	2.22%	2.87%	2.50%	2.50%	2.75%	3.25%	4.25%	4.50%	4.25%	4.25%	4.00%	3.75%	3.50%	3.25%	3.25%
	External	146	168	149	134	128	145	148	149	150	154	158	162	168	173	178	184
RATEEXTL	Average interest rate	4.60%	4.47%	3.49%	3.00%	3.00%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
	Implied Interest Expense	635	803	1057	1116	642											
Net interest earnings		281	294	311	306	391	328	308	317	288	288	301	312	285	298	278	274
OOE	Other earnings	237	296	291	254	270	276	280	279	285	293	300	309	321	329	340	351
NIC	Non-interest costs	337	357	373	347	354	344	332	314	306	299	291	285	281	274	271	265
Operating profits (pre-credit losses)		182	233	229	214	307	260	256	281	268	282	310	336	324	352	348	360
CREDLOS	Credit Losses (-)	-30	-37	-48	-218	-245	-111	-127	-172	-112	-113	-124	-109	-106	-140	-114	-133
Income before tax		152	196	181	-5	61	149	129	109	157	170	186	227	218	212	233	227
	Tax	30	35	28	0	12	30	26	27	36	39	42	50	49	47	52	50
	o/w Bank Fund Levy								5	5	5	5	5	5	5	5	5
Net Income		122	161	153	-4	49	119	103	82	120	131	144	177	169	165	182	176
ROE	Return on Equity	9.65%	11.63%	9.74%	-0.22%	2.65%	6.10%	5.02%	3.80%	5.27%	5.40%	5.66%	6.72%	6.27%	5.95%	6.47%	6.19%
ROA	Return on Assets	0.54%	0.65%	0.55%	-0.01%	0.16%	0.38%	0.32%	0.25%	0.35%	0.37%	0.40%	0.48%	0.45%	0.43%	0.47%	0.44%
Macroeconomic Framework																	
Nominal GDP growth		3.8	5.1	5.2	2.8	-3.0	2.2	1.7	-0.4	2.2	2.6	2.3	3.2	3.6	2.5	3.6	3.1
	Residual						*-0.7*	*-0.4*									
RGDPG	Real growth	1.8	3.1	2.8	0.5	-4.0	1.0	0.5	-1.3	0.9	1.0	0.6	1.3	1.5	0.5	1.5	1.0
PGDPG	GDP deflator	2.0	2.0	2.4	2.2	1.1	1.2	1.3	1.0	1.3	1.6	1.7	1.9	2.1	2.0	2.1	2.1
	Output gap	-0.5	1.0	1.9	0.7	-4.5	-4.3	-4.0	-5.5	-3.9	-2.3	-2.0	-1.1	-0.1	-0.6	-0.2	-0.2
	Employment (thousands)	136958	139705	142478	144188	141860	141225	142070	141615	141934	143100	144084	145365	147041	148167	149550	151009
	%oya	2.4	2.0	2.0	1.2	-1.6	-0.4	0.6	-0.3	0.2	0.8	0.7	0.9	1.2	0.8	0.9	1.0
Risk-weighted %oya		11.5	11.3	1.8	9.8	-3.1	2.0	8.1	-1.1	2.1	1.6	1.2	2.6	3.2	1.7	3.1	2.5
Bank assets		23634	25945	29440	31837	31147	31758	33002	33734	35414	35860	36218	36956	37881	38408	39364	40166
	%oya	10.7	9.8	13.5	8.1	-2.2	2.0	3.9	2.2	5.0	1.3	1.0	2.0	2.5	1.4	2.5	2.0
	%GDP	290.3	303.2	326.9	343.8	346.6	345.9	353.4	362.6	372.4	367.4	362.6	358.5	354.6	350.7	347.1	343.5
Bank credit to private sector		8838	9807	11008	11901	11951	12275	12442	12055	12243	12519	12738	13156	13693	13973	14526	14978
	%oya	9.3	11.0	12.2	8.1	0.4	2.7	1.4	-3.1	1.6	2.3	1.7	3.3	4.1	2.0	4.0	3.1
	%GDP	108.6	114.6	122.2	128.5	133.0	133.7	133.2	129.6	128.7	128.3	127.5	127.6	128.2	127.6	128.1	128.1
Nonbank credit to private sector		2037	2153	2139	2217	2327	2442	2546	2598	2711	2839	2965	3120	3295	3447	3639	3826
	%oya	3.9	5.7	-0.6	3.7	5.0	4.9	4.3	2.0	4.4	4.7	4.5	5.2	5.6	4.6	5.6	5.1
	%GDP	25.0	25.2	23.8	23.9	25.9	26.6	27.3	27.9	28.5	29.1	29.7	30.3	30.8	31.5	32.1	32.7
Private sector (EUR billion)		10874	11960	13147	14118	14278	14717	14988	14653	14954	15358	15703	16276	16988	17420	18165	18804
	%oya	8.2	10.0	9.9	7.4	1.1	3.1	1.8	-2.2	2.1	2.7	2.2	3.6	4.4	2.5	4.3	3.5
Nominal GDP		8141	8558	9006	9259	8985	9181	9338	9303	9510	9760	9988	10307	10683	10950	11342	11694

Euro Area: Historical Dataset

EUR billion

Bank Balance Sheet Model

		2001-06 risk-weighting	2001	2002	2003	2004	2005	2006	*Current risk-weighting*	2007	2008	2009
Bank Assets			18166	18811	19800	21355	23634	25945		29440	31837	31147
LIQ	Cash	*0%*	143	129	114	139	156	174	*0%*	379	456	369
GOV	Government bonds	*0%*	1077	1135	1243	1300	1432	1279	*5%*	1197	1245	1483
LIQ/TA	Liquid asset ratio		6.7%	6.7%	6.8%	6.7%	6.7%	5.6%		5.4%	5.3%	5.9%
IB	Domestic financial		6499	6816	7178	7645	7996	8612		9966	10835	10657
IB (TB)	Trading Book	*10%*	449	525	583	627	652	732	*10%*	896	1016	1015
IB (BB)	Banking Book	*25%*	6050	6291	6595	7018	7344	7880	*25%*	9070	9820	9642
CORP	Domestic non-financial		3798	3896	4082	4278	4656	5285		6212	7012	6996
CORP (TB)	Trading Book	*25%*	336	366	428	466	552	646	*25%*	953	1407	1498
CORP (BB)	Banking Book	*100%*	3462	3529	3654	3812	4105	4639	*100%*	5259	5606	5498
	%oya			1.9	3.5	4.3	7.7	13.0		13.4	6.6	-1.9
HH	Household		3146	3327	3521	3808	4182	4523		4796	4889	4955
MORT	Mortgages	*75%*	2026	2189	2361	2592	2911	3203	*50%*	3429	3490	3550
CC	Other	*100%*	1120	1139	1160	1217	1271	1320	*50%*	1367	1398	1405
EXTA	External		2403	2460	2568	2943	3656	4337		4879	4754	4264
EXTA (HG)	High-grade	*25%*	1850	1894	1978	2266	2815	3339	*25%*	3756	3501	3096
EXTA (EM)	Risky (EM)	*100%*	553	566	591	677	841	998	*100%*	1122	1253	1168
	Fixed Assets	*100%*	168	168	162	160	166	173	*100%*	206	212	219
	Other Assets	*100%*	933	880	933	1082	1391	1563	*100%*	1806	2435	2204
RWA	Risk-weighted assets		9859	10113	10578	11392	12699	14134		14385	15795	15302
	RWA/Total Assets		54%	54%	53%	53%	54%	54%		49%	50%	49%
Bank Liabilities			17128	17706	18650	20153	22319	24491		27757	30070	29231
M1	Retail		5867	6061	6410	6779	7374	8026		8994	9881	10160
M2	Domestic financial		4266	4670	5014	5386	5547	5938		6842	7686	7040
M3	Wholesale (non-capital)		2883	2993	3161	3497	3844	4234		4631	4848	4920
	Short-term (<1 year)		249	285	302	348	357	427		597	633	496
	Long-term (> 1 year)		2634	2709	2860	3149	3487	3806		4034	4215	4424
EXTL	External		2687	2593	2606	2815	3526	3991		4538	4403	4098
	Other Liabilities		1425	1389	1459	1676	2027	2302		2751	3252	3013
Capital			1038	1105	1150	1203	1315	1454		1684	1767	1915
T2	Tier II			300	326	351	385	452		417	475	465
T1	Tier I			901	978	924	1031	1134		1109	1358	1443
TCE	Core			766	831	785	876	963		943	1155	1227
T1-TCE	Non-core			135	147	139	155	170		166	204	216
REGCAP	Regulatory			1201	1304	1275	1416	1586		1526	1834	1908
REGADJ	Regulatory Adjustments			-96	-155	-72	-101	-132		157	-66	7
Key Capital ratios												
REGCAP/RWA	Regulatory Capital			11.9%	12.3%	11.2%	11.2%	11.2%		10.6%	11.6%	12.5%
BIS	*Regulatory minimum*			*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*		*8.0%*	*8.0%*	*8.0%*
BUFCAP	National buffer (%pts)			3.9%	4.3%	3.2%	3.2%	3.2%		2.6%	3.6%	4.5%
T1/RWA	Tier I			8.9%	9.2%	8.1%	8.1%	8.0%		7.7%	8.6%	9.4%
TCE/RWA	Core Tier I			7.6%	7.9%	6.9%	6.9%	6.8%		6.6%	7.3%	8.0%
BIS(T1)	*Regulatory minimum*			*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*		*4.0%*	*4.0%*	*4.0%*
BUFCAP (T1)	National buffer (%pts)			4.9%	5.2%	4.1%	4.1%	4.0%		3.7%	4.6%	5.4%
	Required buffer			4.4%	4.4%	4.4%	4.4%	4.4%		4.4%	4.4%	4.4%
LEVRAT	Leverage ratio			15.7	15.2	16.8	16.7	16.4		19.3	17.4	16.3

Euro Area: Historical Dataset

EUR billion

		2001	2002	2003	2004	2005	2006	2007	2008	2009
Key Liquidity ratios										
	Liquidity coverage ratio									
	Net stable funding ratio									
	Cash/Assets	0.78%	0.69%	0.57%	0.65%	0.66%	0.67%	1.29%	1.43%	1.18%
Bank Core Capital Supply Model										
Total new Core Capital										
NEWTCE	Required new issuance									
RROE	Core equity shadow price									
REDEF	Redefinition effects									
PROFRET	Retained income									
PROFRET/PR(	% of profits retained									
Banking Sector P&L Model										
Interest earnings		1017	922	827	795	903	1082	1352	1235	899
	Cash		4	3	3	3	5	11	16	5
FFUNDS	10yr bond yield	4.28%	3.22%	2.26%	2.00%	2.02%	2.78%	3.85%	3.88%	1.25%
	Government bonds		53	49	52	46	51	52	49	45
BOND	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
	Domestic financial		23	161	173	199	307	445	349	102
	Trading Book		23	23	25	22	26	34	38	33
BOND	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
	Banking Book			138	148	178	280	411	311	69
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (BANK)	Yield curve spread			-1.95%	-1.89%	-0.91%	-0.10%	0.62%	-0.70%	-2.55%
	Domestic non-financial			186	186	189	233	304	348	378
	Trading Book			19	20	22	28	42	62	78
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (CORP)	Lending spread			0.56%	0.38%	0.86%	0.90%	1.05%	1.27%	2.13%
	Banking Book			167	166	168	205	261	286	300
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (CORP)	Lending spread			0.56%	0.38%	0.86%	0.90%	1.05%	1.27%	2.13%
	Household			154	154	162	207	250	256	210
	Mortgages			100	101	109	147	179	183	134
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (HH)	Lending spread			0.31%	0.00%	0.60%	1.02%	1.17%	1.30%	0.54%
	Other	27	54	54	53	53	61	71	73	76
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (HH)	Lending spread			0.56%	0.38%	0.86%	0.90%	1.05%	1.27%	2.13%
	Real borrowing rate			2.45%	2.62%	2.29%	2.68%	2.91%	3.12%	4.30%
	External		146	153	144	171	193	229	216	159
	High grade		90	79	86	86	116	150	145	108
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
	Risky (EM)		56	74	58	85	77	79	71	52
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
SPREAD (EXTA)	Lending spread		5.28%	8.63%	5.01%	7.82%	4.56%	3.22%	2.00%	1.00%
	Implied Interest Earnings		227	705	710	771	996	1291	1235	899
ECB	Key policy rate	4.28%	3.22%	2.26%	2.00%	2.02%	2.78%	3.85%	3.88%	1.25%
BUND	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
Interest expenses		762	650	555	521	622	789	1041	929	509
	Retail		180	128	119	129	199	311	347	105
	Key policy rate	4.28%	3.22%	2.26%	2.00%	2.02%	2.78%	3.85%	3.88%	1.25%
RATEM1	Spread over official	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%
	Domestic financial		177	146	143	151	203	294	336	147

Euro Area: Historical Dataset

EUR billion

		2001	2002	2003	2004	2005	2006	2007	2008	2009
	Key policy rate	4.28%	3.22%	2.26%	2.00%	2.02%	2.78%	3.85%	3.88%	1.25%
RATEM2	Spread over official	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	Wholesale (non-capital)		209	198	192	209	234	303	298	262
	Short-term		11	10	10	11	15	25	30	13
	Key policy rate	4.28%	3.22%	2.26%	2.00%	2.02%	2.78%	3.85%	3.88%	1.25%
RATEM3	Spread over official	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Long-term		197	189	182	199	219	278	268	249
	10yr bond yield	4.82%	4.79%	4.10%	4.07%	3.38%	3.78%	4.23%	4.00%	3.27%
RATEM4	Spread over official	2.00%	2.60%	2.67%	1.99%	2.61%	2.22%	2.87%	2.50%	2.50%
	External		95	94	81	146	168	149	134	128
RATEEXTL	Average interest rate	3.00%	3.59%	3.63%	2.99%	4.60%	4.47%	3.49%	3.00%	3.00%
	Implied Interest Expense		661	567	534	635	803	1057	1116	642
Net interest earnings		255	273	272	274	281	294	311	306	391
OOE	Other earnings	198	195	191	193	237	296	291	254	270
NIC	Non-interest costs	309	312	317	321	337	357	373	347	354
Operating profits (pre-credit losses)		144	156	147	146	182	233	229	214	307
CREDLOS	Credit Losses (-)	-47	-66	-57	-34	-30	-37	-48	-218	-245
Income before tax		97	90	90	113	152	196	181	-5	61
	Tax	21	19	22	26	30	35	28	0	12
Net Income		76	71	68	87	122	161	153	-4	49
ROE	Return on Equity	7.31%	6.64%	6.04%	7.40%	9.65%	11.63%	9.74%	-0.22%	2.65%
ROA	Return on Assets	0.42%	0.38%	0.35%	0.42%	0.54%	0.65%	0.55%	-0.01%	0.16%

Macroeconomic Framework

Nominal GDP growth		4.4	3.5	3.0	3.9	3.8	5.1	5.2	2.8	-3.0
	Residual									
RGDPG	Real growth	1.9	0.9	0.8	2.0	1.8	3.1	2.8	0.5	-4.0
PGDPG	GDP deflator	2.4	2.6	2.2	1.8	2.0	2.0	2.4	2.2	1.1
	Output gap	0.9	-0.2	-1.1	-0.8	-0.5	1.0	1.9	0.7	-4.5
	Employment (thousands)	130456	131617	133080	133686	136958	139705	142478	144188	141860
	%oya		0.9	1.1	0.5	2.4	2.0	2.0	1.2	-1.6
Risk-weighted %oya			2.6	4.6	7.7	11.5	11.3	1.8	9.8	-3.1
Bank assets		18166	18811	19800	21355	23634	25945	29440	31837	31147
	%oya		3.5	5.3	7.9	10.7	9.8	13.5	8.1	-2.2
	%GDP	256.7	256.7	262.2	272.3	290.3	303.2	326.9	343.8	346.6
Bank credit to private sector		6944	7223	7603	8086	8838	9807	11008	11901	11951
	%oya		4.0	5.3	6.4	9.3	11.0	12.2	8.1	0.4
	%GDP	98.1	98.6	100.7	103.1	108.6	114.6	122.2	128.5	133.0
Nonbank credit to private sector			1795	1914	1961	2037	2153	2139	2217	2327
	%oya			6.6	2.5	3.9	5.7	-0.6	3.7	5.0
	%GDP	0.0	24.5	25.3	25.0	25.0	25.2	23.8	23.9	25.9
Private sector	(EUR billion)	6944	9017	9516	10047	10874	11960	13147	14118	14278
	%oya		29.9	5.5	5.6	8.2	10.0	9.9	7.4	1.1
Nominal GDP		7078	7328	7550	7843	8141	8558	9006	9259	8985

Chapter 5

Impact on the Japanese Economy

Introduction and Summary

- Japan's relatively large and concentrated banking system stands out among the major economies as having been one of the most resilient through the latest crisis.

- There were no major banking failures in 2007-09: the number of banking institutions remained relatively stable through the crisis. The provision of emergency support to the domestic banking system through the crisis period was minimal. The disorder in Japan's money markets was nothing of the kind experienced in either the United States or Euro Area.

- There is, of course, a reason why Japan's banks, in aggregate, were able to avoid the troubles that many their US, Euro Area and UK counterparts encountered after July 2007. The sector had experienced over ten years of trauma, following the excessive lending boom in the 1980s.

- After the lost decade of the 1990s, the Japanese regulatory authorities launched various counter-measures to revive the financial sector. These measures could serve as a good road map for others to follow, especially subsequent developments showed that Japan's banks avoided the mistakes of other banking systems in the latest credit cycle—which was the first under this new regulatory regime.

- The Japanese economy will be adversely affected by changes projected under the reforms to Basel II, although not dramatically so. For 2011-2020 as a whole, average annual growth would be reduced by about two tenths, with the cumulative impact amounting to about 1.5% points through 2020. As with other jurisdictions, the dynamic of the hit from the regulatory change is quite adverse through 2013-14, which is when the maximum impact of higher capital charges (combined with negative redefinition effects) is felt.

- Moreover, these negative developments growth are apt to worsen two basic problems facing Japan: deflation and high budget deficits and public debt.

- One key unknown is whether Japanese banks will find investors will to buy the extra ¥15 trillion of Tier 1 (common) equity we project as necessary in the five

years through 2015. In our framework, equity issuance is possible, but at a price, which banks then pass on to their borrowing customers. If this is not possible, however, then banks would be forced to be more aggressive in cutting their balance sheets in the years ahead, adding yet further to downside deflation risks.

Resilient in the Latest Episode

Japan's relatively large and concentrated banking system stands out among the major economies as having been one of the most resilient through the latest crisis[60]. This can be highlighted in a number of ways:

- There were no major banking failures in Japan in 2007-09: the number of banking institutions remained relatively stable through the crisis (Table 13);

Table 13
The Japanese Banking System in Summary

	Dec 06	Dec 07	Dec 08	Dec 09
Number of Banks (JBA measure)*	150	147	148	148
City Banks	6	6	6	6
Regional Banks	111	110	109	108
Other Banks	33	31	33	34
Total Assets (¥ *trillion*)	749	769	813	800
%oya	0.2	2.6	5.8	-1.6
%GDP	147.7	149.1	161.0	168.8
Risk-Weighted Assets (RWA, ¥ *trillion*)	550	561	592	556
%oya	2.1	2.1	5.5	-6.1
Capital Ratios (*all expressed as % of RWA*)				
Regulatory Capital	7.3	7.6	7.7	9.6
Tier 1 Capital	5.4	5.6	5.6	6.8
Core Tier 1 Capital	3.3	3.3	3.3	4.1
Liquid Asset Ratio	12.9	11.5	12.5	16.0
Share of Banks in Credit Intermediation	41.3	50.1	52.6	52.6

* end March

Sources: Bank of Japan, Japanese Bankers Association (JBA), Individual bank reports, IIF Staff estimates

- The provision of emergency support to the Japanese banking system through the crisis period was minimal (Charts 33 and 34). Some commitments of support were made, but there were no outright disbursements whether in the form of capital injections, asset purchases or guarantees. This is in stark contrast to most other G7 countries, especially the United States and United Kingdom.
- Credit losses reported by Japanese banks (and Asian bank more generally) have been relatively modest since the beginning of 2007 (Chart 35). Overall Asian credit

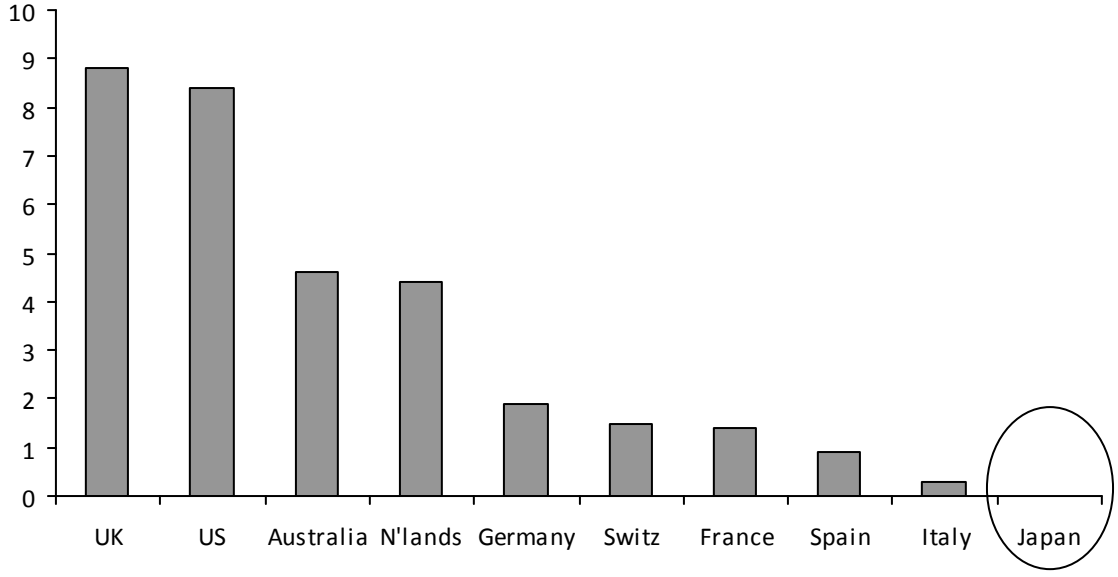
[60] Within the G7, the systems in Canada and Japan experienced least stress.

losses have been just 3.5 percent of those in the Americas, the overwhelming amount of which was in the United States.

- The disorder in Japan's money markets was significant, but nothing of the kind experienced in either the United States or Euro Area (Chart 36). As a result, the Bank of Japan was required to provide less in the way of liquidity support facilities and thus expanded its overall balance by far less than other major central banks.
- Finally, it should be noted that Japan's banking system became part of the solution in 2008Q4. The capital injection by MUFG into Morgan Stanley at the end of September is widely acknowledged to have been an important support, stopping the domino-like collapse of US investment banks[61].

Chart 33

Bank Rescue Package Outlays 2007-09
as percent of bank assets



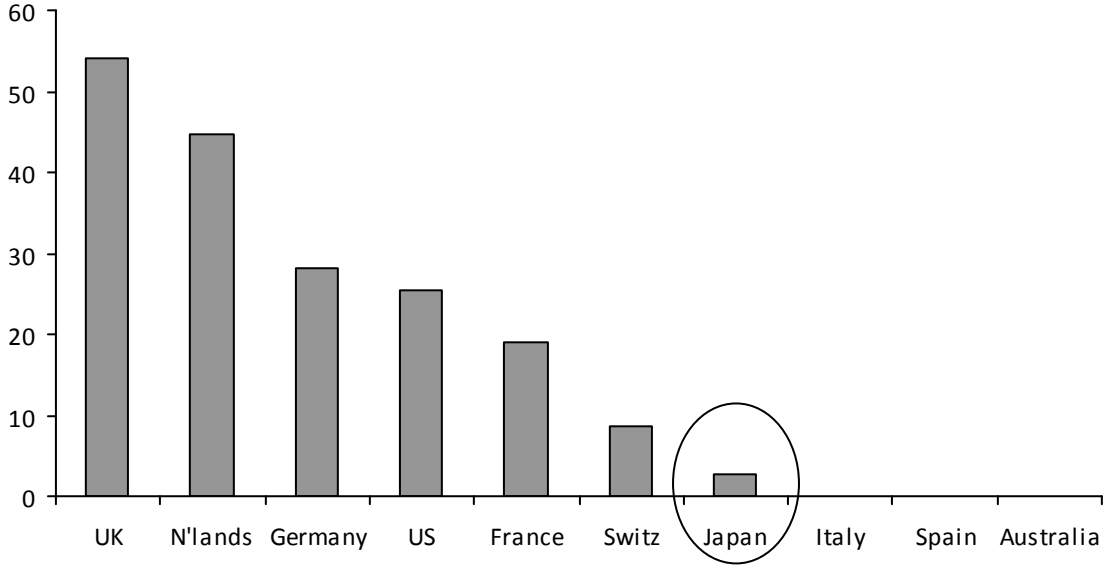
Source: Panetta et al. (2009)

[61] See Paulson (2010), pp 271, 277 and 359-360.

Chart 34

Bank Rescue Package Commitments 2007-09

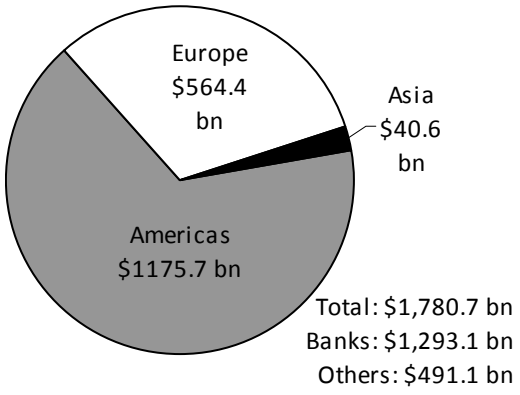
as percent of bank assets



Source: Panetta et al. (2009)

Chart 35

Reported Losses at Financial Institutions*



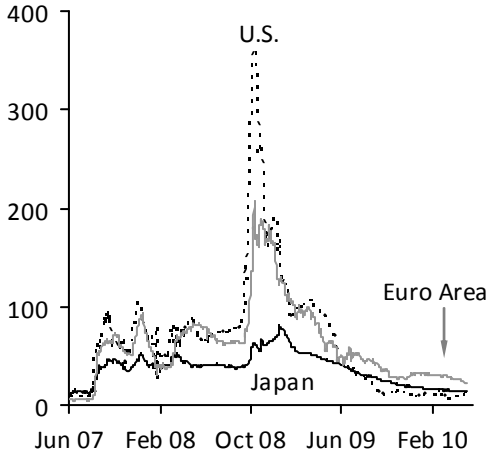
*Includes writedowns and credit losses for banks/brokers, insurance companies and U.S. mortgage market GSEs. Losses since beginning of 2007.

Source: Bloomberg

Chart 36

G3: 3-Month Libor - Overnight Index Swaps

basis points



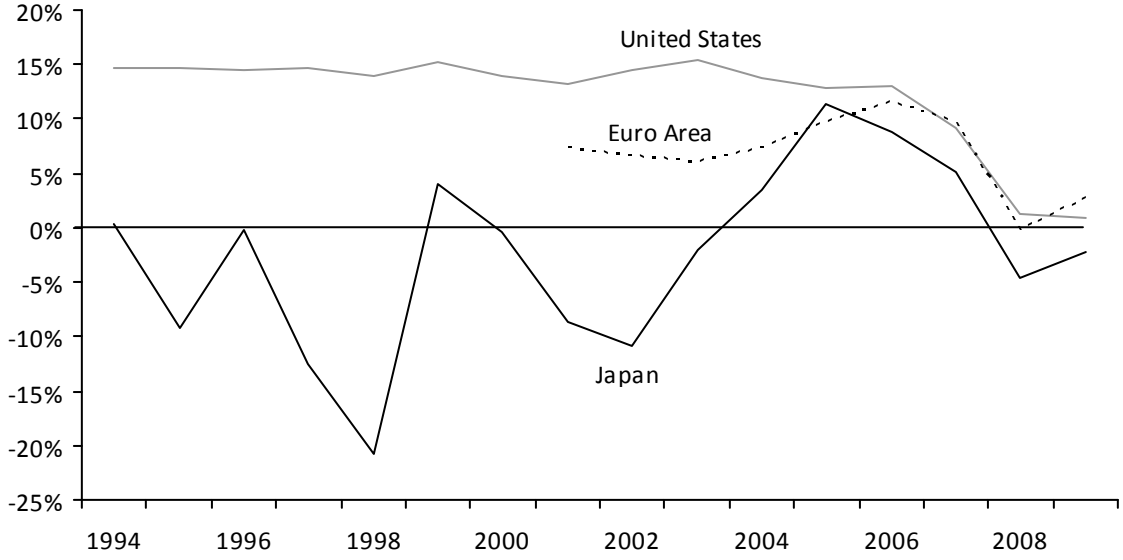
Seen it, Done it

There is, of course, a reason why Japan's banks, in aggregate, were able to avoid the troubles that many their US, Euro Area and UK counterparts encountered after July 2007. The sector had experienced over ten years of trauma, following the excessive lending boom in the 1980s. A number of years passed between the bursting of the bubble (in 1989-90) and the first casualties in the banking system (1994). Once the financial system began to contact, however, a very painful 7 years ensued, during which time there was a major restructuring of the banking industry amid a phase of very poor financial performance (Chart 37)[62].

Chart 37

Rates of Return on Bank Equity: G3 Economies

net income relative to shareholders' capital



Source: National sources and IIF estimates

After the lost decade of the 1990s, the Japanese regulatory authorities launched various counter-measures to revive the financial sector. It could be argued that this combination of measures would serve as a good road map for others to follow, especially subsequent developments showed that Japan's banks avoided the mistakes of other banking systems in the latest credit cycle—which was the first under this new regulatory regime[63]. As illustrated above, the system has been quite resilient through the downturn, although the same cannot be said for the economy – which is an important

[62] For more details, see Nakaso, H. (2001) and Ito, T. and Sasaki, Y.N. (1998).

[63] Another aspect of Japan's experience from the 1990s that is important is the likelihood that the tightening in regulation after 1994 contributed to Japanese banks' withdrawal from international lending which, in turn, contributed to the East Asia crisis. See Brana, S. and Lahet, D. (2009).

reminder that macro stability does not follow on automatically from banking sector stability. These measures included:

- The separation of non-performing loans from the balance sheet by imposing strict risk assessment;
- The introduction of safety nets such as deposit insurance;
- The introduction of far more rigorous supervision;
- The introduction of a bankruptcy resolution framework that insulated against the "too big too fail" problem.

Significantly, these measures were introduced ahead of subsequent measures to boost capital. Caution was also taken with regard to the implementation of stricter capital regulation (e.g. the improvement of the quality of capital) so that it would not undermine banks' ability to intermediate credit. Indeed, Japan's banks went into the latest crisis with both relatively low capital ratios (by global standards) and with a capital structure that would be viewed as poor quality.

Alongside these regulatory reforms, there were a whole host of mergers: some forced; others voluntary. The resulting banking system can be broken into two broad groups: several large "City" banks (often known as "mega-banks"), and a set of smaller regional banks (Table 13). Private banks account for about a half of the credit intermediation process in the economy, which broadly lies about half way between the United States and the Euro Area. These private banks can then be combined with co-operative-type private financial institutions to form the universe of private depository institutions[64]. These private institutions then combine with relatively large public sector financial institutions (including, most prominently, Japan Post Bank) to make up the overall debt intermediation system.

While its relative recent stability has been important, there are two other, less encouraging aspects about the banking system that need bearing in mind when considering proposals for regulatory reform:

- Japan's banking system is relatively unprofitable, even after taking into account the credit losses associated massive decade-long cleaning up operation following the collapse of the 1908s bubble[65]. It should be noted that it is hard to blame poor cost control for Japanese bank profitability. Rather, the main challenge is the

[64] For a detailed schema, see The Japanese Bankers' Association (http://www.zenginkyo.or.jp/en/banks/principal/index.html).
[65] See Horiuchi, C. et al. (2009a) and (2009b), Oyama and Shiratori (2001) and Loukoianova (2008).

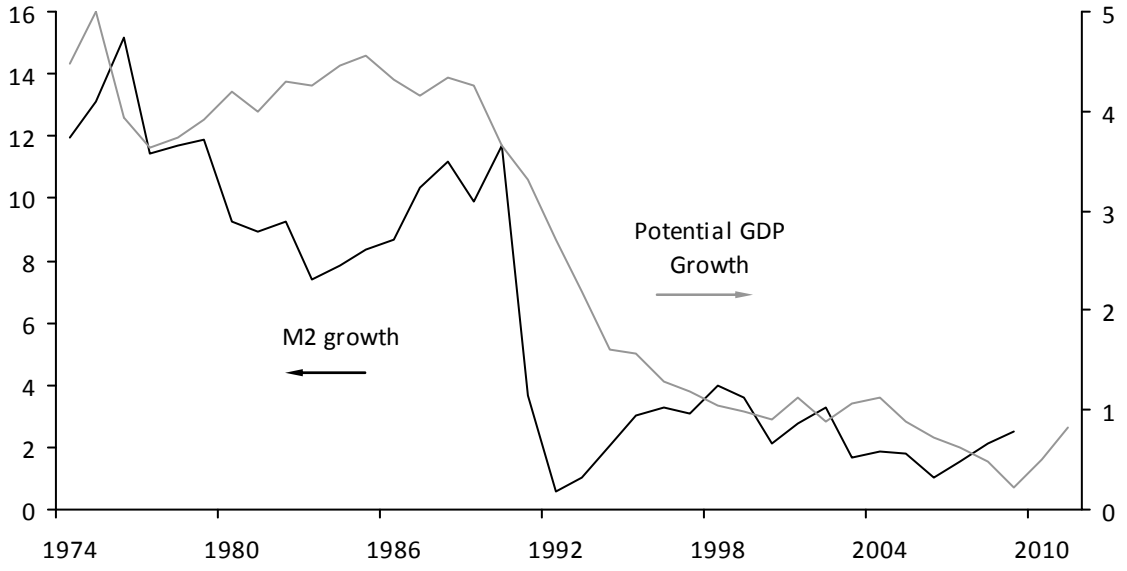
combination of the low interest rate environment (official short-term policy rates have been close to zero throughout the past decade), and the weak demand for credit resulting from the sustained massive financial surpluses in the private sector – primarily in the corporate sector. There has been a significant decline in the household saving ratio, but this has been accompanied by a reduction in (previously very large) household financial assets, rather than an increase in consumer borrowing. The outcome is very low net interest margins. Importantly, the weak profitability of Japan's banks, even in the good times, makes it both hard for Japan's banks to earn their way to higher capital through retained earnings, as well as raise common equity in public markets, as the return on equity is structurally low (see Chart 37).

- The post-bubble environment has been one of low money and bank credit growth. It has also been one where Japan's potential growth rate has been much weaker (Chart 38). The correlation of these two developments does not imply causality: low potential growth may have led to weak money and credit demands; or both might have been pushed lower by a common, third factor. It is hard to identify what occurred in the early 1980s—aside from a dramatic change in the credit environment—that could have led to such a dramatic change in Japanese growth performance over the subsequent 20 years.

Chart 38

Japan: Money Supply and Potential GDP Growth

percent, y/y



Sources: Bank of Japan, OECD

Specifics of Regulatory Change Scenario

In our quantitative work to date, we have focused on modeling those measures which have both a high level of clarity (albeit so far unquantified) and likelihood of occurrence (see Chapter 2). For Japan, this means focusing on the Basel III proposals (see Chapter 2). In assessing the cumulative effects on the Japanese economy, our specific assumptions are:

1) *An increase in trading book capital at the end of 2010*. Our estimate is that the Japanese banking system held about ¥88 trillion in trading book assets at the end of 2009, the overwhelming proportion of which were interbank claims. Based on industry estimates, we project the capital charge levied against these holdings to rise by about three fold, which we capture by raising the average risk weighting assigned to such trading book securities from 10% to 30% for securities of financial firms held in the trading book), and from 25% to 75% for securities of non-financial firms.
2) *A two percentage point increase in the minimum Tier 1 and overall regulatory capital ratios, to 6% and 10%, respectively, to take place at the end of 2012*. In our other country models, we have assumed that supervisors will enforce broadly the same "fixed" buffers of actual capital over these regulatory minima in 2012-2020, as were applied historically. In Japan, however, bank capital ratios were generally too low in the 1990s through 2007, so we assume instead that it is the 2009 buffers which are broadly maintained in 2012-20 in both scenarios. These 2009 buffers are 1.6 percentage points over total regulatory capital and 2.8 percentage points over the Tier 1 minimum.
3) *Redefinition effects*. Japanese banks will be significantly affected by redefinition effects which exclude a series of components that hitherto banks have been able to count as capital. Historically, Japanese banks had relied on unrealized capital gains on asset holdings, especially equities, but the sustained weakness in Japanese equity prices after 1990 underlined how quickly such valuations could disappear. In more recent years, however, other components of capital have become more prominent, the most significant of which are minority interests in consolidated subsidiaries. While there is considerable uncertainty about how much these possible deductions amount to in the aggregate, we have estimated them to total ¥12 trillion (which amounts to about 30% of Tier 1 equity as of December 2009). We project that this amount is re-classified (as Tier 2 capital) over a 3 year horizon from 2012 to 2014 (i.e. ¥4 trillion per year). This allows Tier 2 capital to be sustained at current levels, even though redefinition effects and rule changes which will make Tier 2 instruments less attractive both to banks and investors might otherwise reduce it.
4) *No countercyclical buffer*. In principle, we would expect regulators to introduce a one percentage point counter-cyclical capital buffer in the midst of the next cyclical upswing. As with the Euro Area, however, we judge Japanese growth

prospects to be sufficiently muted over coming years in the regulatory change scenario, that it is hard to project any enthusiasm among policy makers to introduce such an additional buffer. Of course, policy makers will not know this ex ante, so they might well go ahead and introduce such a restriction anyway. But, for now, we have left this out of our regulatory change scenario.

5) *Higher holdings of liquid assets as a result of the Liquidity Coverage Ratio (LCR)*. The Liquidity Coverage Ratio will require that banks hold sufficient liquid assets to ensure that they can survive a period of extreme stress. In the base scenario, the LCR is not a binding constraint. But in our regulatory change scenario, we adjust the overall liquid asset ratio (the ratio of cash and government bonds held to total assets), in an effort to allow banks to meet the LCR through the projection horizon in the regulatory change scenario. At the end of 2009, Japanese banks held about 16% of total assets in the form of liquid assets (cash plus government bonds). In our regulatory change scenario, we project banks to lift this ratio to 18%, which allows banks to meet the 100% LCR minimum.
6) *A greater reliance on longer-term over short-term wholesale funding, as a result of the Net Stable Funding Ratio (NSFR)*. The new liquidity provisions will also apply on the liabilities' side of banks' balance sheets. We assume that the NSFR will be introduced in 2012, and that this will have the effect (in 2010-2012) of shifting banks' wholesale funding to longer-term debt. Japan's banks shift their wholesale issuance towards longer-term debt through the regulatory change projection.

The Results in Outline

Based on our framework, the Japanese economy will be adversely affected by projected changes, although not dramatically so. For 2011-2020 as a whole, average annual growth would be reduced by about two tenths, with the cumulative impact amounting to about 1.5% points through 2020 (Table 14).

As with other jurisdictions, the dynamic of the hit from the regulatory change is quite adverse through 2013-14, which is when the maximum impact of higher capital charges (combined with negative redefinition effects) is felt. In 2013, the difference between nominal GDP in the regulatory reform and base scenarios amounts to about ¥15 trillion (Chart 39).

Table 14
Japan: Cumulative Effects Results

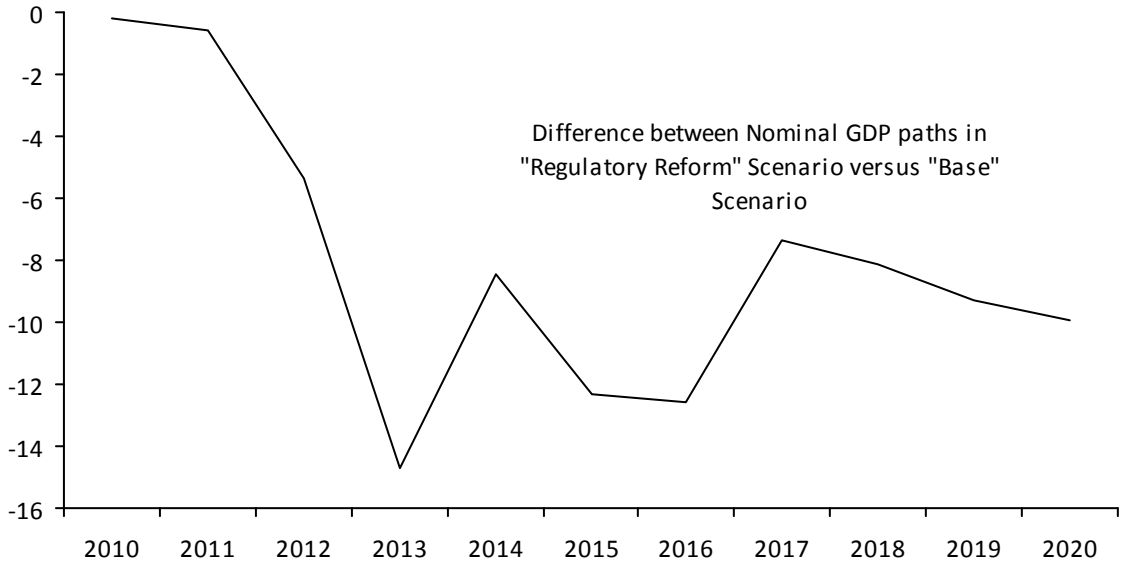
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	*Avg 2011-20*
Real GDP (2010 = 100)												
Base	100	102.0	103.6	105.0	105.7	107.2	108.7	110.1	111.6	113.0	114.5	
Regulatory change	100	101.9	102.6	102.4	104.3	105.2	106.6	109.1	110.3	111.5	112.8	
Difference (%)	0.0	-0.1	-0.9	-2.5	-1.3	-1.9	-1.9	-1.0	-1.2	-1.4	-1.5	
Real GDP (%y/y)												
Base	3.4	2.0	1.6	1.4	0.6	1.5	1.4	1.3	1.3	1.3	1.3	*1.4*
Regulatory change	3.4	1.9	0.7	-0.2	1.9	0.8	1.4	2.3	1.1	1.1	1.2	*1.2*
GDP deflator (2010 = 100)												
Base	100	99.5	99.1	98.9	98.5	98.2	97.8	97.4	97.1	96.8	96.4	
Regulatory change	100	99.5	99.0	98.6	98.1	97.7	97.3	97.1	96.8	96.4	96.1	
GDP deflator (%y/y)												
Base	-0.8	-0.5	-0.3	-0.2	-0.4	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4	*-0.4*
Regulatory change	-0.8	-0.5	-0.4	-0.5	-0.4	-0.5	-0.4	-0.3	-0.3	-0.3	-0.4	*-0.4*
Nominal GDP (¥ trillion)												
Base	486	494	500	505	506	512	517	522	527	532	537	
Regulatory change	486	493	494	491	498	500	505	515	519	523	527	
Difference (¥ trillion)	0	-1	-5	-15	-8	-12	-13	-7	-8	-9	-10	
Employment (millions)												
Base	62.0	62.5	62.7	62.8	62.8	62.7	62.8	62.8	62.9	63.0	63.0	
Regulatory change	62.0	62.5	62.5	62.3	62.1	62.2	62.2	62.4	62.6	62.6	62.6	
Difference ('000)	-4	-18	-134	-480	-608	-460	-578	-463	-319	-378	-427	
Private sector credit (2010 = 100)												
Base	100	102.1	103.7	105.2	104.7	106.0	107.2	108.4	109.6	110.6	111.8	
Regulatory change	100	101.9	101.5	99.3	101.3	101.1	102.2	105.5	106.3	106.9	107.8	
Private sector credit growth (%y/y)												
Base	3.4	2.1	1.6	1.5	-0.5	1.3	1.1	1.1	1.1	1.0	1.0	*1.1*
Regulatory change	3.4	1.9	-0.3	-2.2	2.1	-0.2	1.1	3.2	0.8	0.6	0.8	*0.8*
Bank assets (%y/y)												
Base	3.6	0.4	1.3	1.2	-0.6	0.4	0.9	0.2	0.9	0.1	0.8	*0.6*
Regulatory change	3.5	1.6	2.3	-2.3	1.8	-0.3	0.9	2.8	0.6	0.4	0.6	*0.8*
Risk-weighted assets (%y/y)												
Base	3.7	1.8	1.4	1.3	-0.9	1.1	1.0	0.9	0.9	0.8	0.9	*0.9*
Regulatory change	3.7	4.9	-0.4	-2.8	1.9	-0.5	0.9	3.2	0.5	0.4	0.6	*0.9*
Bank credit growth to the private sector (%y/y)												
Base	3.6	2.1	1.6	1.4	-0.7	1.3	1.1	1.0	1.0	0.9	0.9	*1.1*
Regulatory change	3.6	1.9	-0.6	-2.7	2.1	-0.4	1.0	3.3	0.7	0.5	0.7	*0.7*
Core equity shadow price (percent)												
Base	9.8%	6.3%	6.8%	6.3%	6.4%	5.2%	4.8%	4.7%	4.6%	4.5%	4.4%	*5.4%*
Regulatory change	9.8%	6.4%	12.1%	22.2%	13.8%	14.8%	13.8%	7.5%	7.1%	7.7%	7.5%	*11.3%*
Real lending rate (percent)												
Base	1.3%	1.0%	0.9%	0.7%	1.2%	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	*1.0%*
Regulatory change	1.4%	1.1%	1.4%	2.2%	1.8%	2.1%	2.0%	1.3%	1.3%	1.4%	1.4%	*1.6%*
Difference (bps)	2	6	56	151	67	99	89	24	29	37	38	*60*
Regulatory capital ratio (% of RWA)												
Base	9.3%	9.3%	9.2%	9.2%	9.3%	9.2%	9.1%	9.1%	9.0%	9.0%	8.9%	*9.1%*
Regulatory change	9.3%	9.4%	10.2%	10.5%	10.6%	11.8%	11.9%	11.6%	11.6%	11.5%	11.5%	*11.1%*
Core Tier 1 Capital (¥ trillion)												
Base	23	23	23	24	24	24	24	24	24	24	24	
Regulatory change	23	25	30	30	32	38	40	40	40	40	40	
Difference	0	3	7	6	8	15	16	16	16	16	16	
Core Tier 1 capital ratio (% of RWA)												
Base	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.8%	3.8%	3.7%	*3.9%*
Regulatory change	4.0%	4.2%	5.0%	5.1%	5.4%	6.5%	6.6%	6.4%	6.4%	6.4%	6.3%	*5.8%*
Return on bank equity (%)												
Base	-1.7%	-1.4%	0.6%	1.8%	3.0%	2.9%	3.3%	3.6%	3.8%	4.0%	4.2%	*2.6%*
Regulatory change	-1.8%	-1.3%	3.7%	-0.7%	6.2%	7.3%	6.9%	4.3%	4.5%	4.9%	5.0%	*4.1%*

Sources: IIF Estimates

Chart 39

Estimated "Cost" of Regulatory Reform on Japanese Economy

¥ trillion



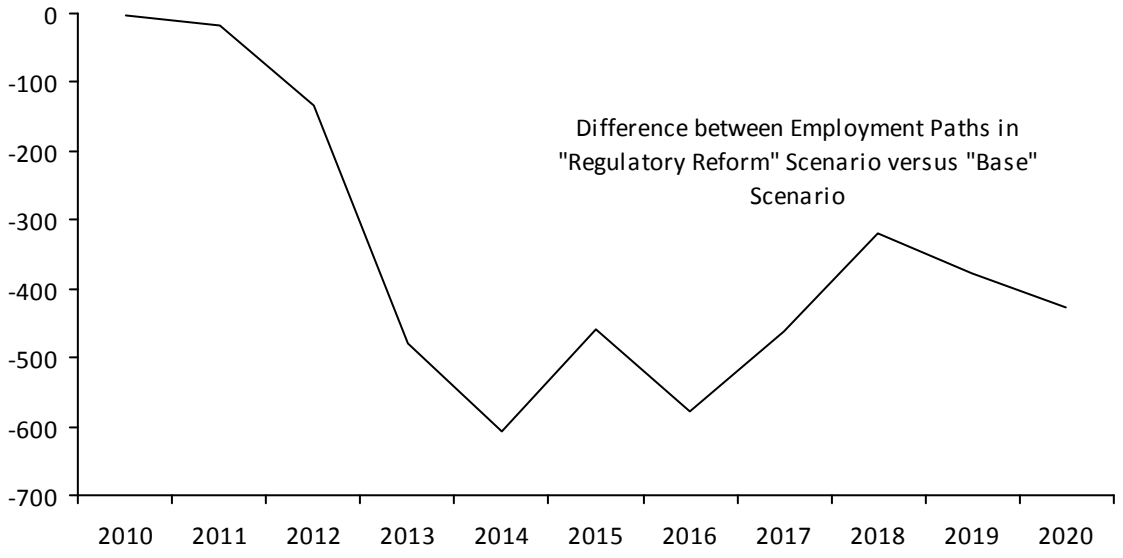
Source: IIF Estimates

The employment implications of regulatory reform are also modestly negative, especially through 2014 (Chart 40). In the regulatory reform scenario, the level of employment is about 610k lower in 2014 than in the base scenario, which amounts to about 1 percent of 2010 employment levels.

Chart 40

Japan Employment Implications of Regulatory Reform

thousands



Source: IIF Estimates

The significance of these negative developments is not so much that they are large in an absolute sense, but they seem to be quite a significant price to pay for an economy where the banking system did not perform poorly through the recent crisis, or reveal itself to be a source of global systemic risk, relatively low levels of capital notwithstanding[66].

This is particularly the case, since these negative developments are apt to worsen two basic problems facing Japan:

- Weaker growth in credit and nominal income will further intensify deflation risks in Japan. The path for prices is a relatively weak one in both our base and regulatory change scenarios, with prices falling throughout the next 10 years in both scenarios. The regulatory change environment is modestly weaker, however, which goes against the grain of everything that the Bank of Japan is otherwise trying to achieve. From a perspective of both national and global financial stability, it is far from clear that a policy change that adds to the downside risks to deflation is a particularly appropriate one.

- Lower growth in nominal income will weaken tax revenue growth and compound the Japanese government's budget deficit and debt difficulties. The path of regulatory reform implies a nominal income loss which averages about ¥12 trillion in 2013-16, which would translate to loss in tax revenue of about ¥3 trillion, or about 0.6% of GDP.

The Key Unknown: How Much of a Market in Japanese Bank Equity?

In tracing both the effects of regulatory change on the economy, as well as calibrating their likely scale, a key variable in our Japan framework (as in our other models) is the "shadow price" of equity – effectively the charge that the capital allocation part of the banking system makes to the lending departments which, in turn, is passed on to borrowers in the form of a higher lending rate spread. In our Japan model, this lending spread averages about 60 basis points higher through the next decade in a regulatory reform scenario, although it peaks a high as 150bp in the period of maximum stress for banks—in 2013—when their capital raising activities are at their highest (Chart 41).

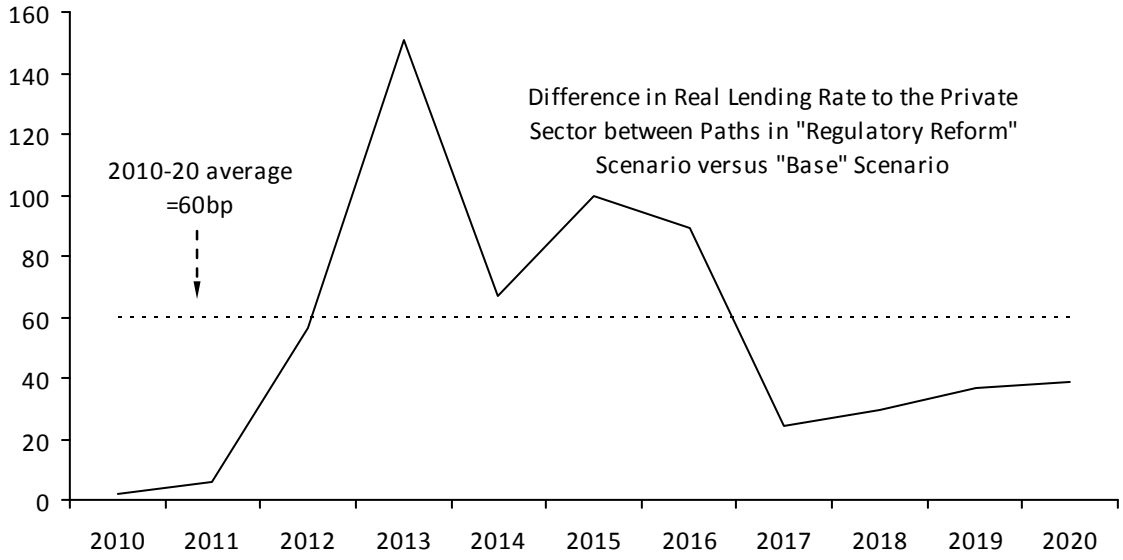
In order to meet higher regulatory norms, banks are projected to issue an extra ¥15 trillion of Tier 1 (common) equity in the five years through 2015. This may not sound like a large amount (it is about 3% of current GDP), but it will be quite a challenge for two simple reasons. First, the low profitability of Japanese banks makes such instruments relatively unattractive to investors, especially global equity investors. Japanese equity

[66] Japan's 6 "mega banks" would also seem to have many of the "too big to fail" characteristics which have seemingly become anathema. As noted, however, they were more of a source of global stability than systemic risk in the recent episode.

investors are assumed to have different expectations than their global peers in our framework. In our shadow price of equity equation for Japan, we assume that the core rate of return on bank equity that investors aspire to is 5%, in contrast to the United States (12.5%) and Euro Area (10%). Second, Japanese investors have a bias to debt instruments (bonds and bank deposits) relative to equity. This is one important reason why Japanese banks have their specific capital structure (relatively low common equity component and more significant component made up of subordinated debt).
The overall capitalization of the Japanese equity market is about ¥307 trillion, or $3 trillion, which is about 15% of the size of US equity market.

Chart 41

Japan: Real Lending Rate
basis points



Source: IIF Estimates

In order to meet these new challenges, it seems likely that bank behavior will change in three ways:

- There will be a focus on boosting profitability. Banks will cut costs (including employment) and will attempt to widen loan spreads. They will also look to boost fee incomes (e.g. higher guarantee fees) and require additional charges to cover costs for financial operations, including depositary services.

- Banks will most likely take more risks, choosing to expose themselves to businesses and financial transactions that can draw higher returns compared to traditional

banking activities, but with greater risks. It is plausible that Japan would be left with a more, not less risky banking system[67].

- Perhaps most likely, banks could choose to reduce the size of their balance sheets more aggressively than our current projections assume, with banks reducing repos, trading assets, loans, securities, and off-balance sheet items (such as commitments, acceptances, and letters of credit). With this new behavior by the banks in place, pricing in several key markets might be negatively affected.

Taking all this into consideration, banks seem quite likely to reduce risk assets – possibly by more than either of our scenarios suggest. Any consequent negative effects on economy are harder to assess, however. The non-bank private sector in Japan has been running a substantial net financial surplus for a number of years, and thus has had limited net borrowing needs. Reflecting this, latest BoJ lending surveys show that weak bank lending has been mainly the result of weak demand, rather than constrained supply.

[67] It should be noted that Japanese officials have made the same point about the leverage ratio: see Sato (2009).

Appendix: Japan Data Sources

Type of Data	Sources
Balance Sheet	Bank of Japan – Financial Institutions Accounts (FA)
Capital	Bank of Japan – Financial Institutions Accounts (FA) Financial statements of individual banks IMF Global Financial Stability Report April 2010 http://www.imf.org/external/pubs/ft/gfsr/2010/01/index.htm
P&L Model	Japanese Bankers' Association, Financial Statements of all Banks http://www.zenginkyo.or.jp/en/stats/year2_01/index.html IMF Global Financial Stability Report April 2010 http://www.imf.org/external/pubs/ft/gfsr/2010/01/index.htm
Macroeconomic Data	Bank of Japan Japan Cabinet Office OECD Economic Outlook 86 database

Japan: Base Scenario

¥ trillion							Projection period											
		2005	2006	2007	2008	2009	2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank Balance Sheet Model								*No new risk-weighting*										
Bank Assets		747.994	749.391	768.602	813.288	800.269	828.827		832.278	843.192	853.365	848.371	851.745	859.527	861.165	868.491	869.543	876.534
LIQ	Cash	8.098	7.996	8.041	8.441	7.765	8.288	*0%*	8.323	8.432	8.534	8.484	8.517	8.595	8.612	8.685	8.695	8.765
GOV	Government bonds	96.695	88.346	80.727	93.566	120.279	124.324	*0%*	116.519	118.047	119.471	118.772	114.986	116.036	111.951	112.904	108.693	109.567
LIQ/TA	Liquid asset ratio	14.0%	12.9%	11.5%	12.5%	16.0%	**16.0%**		**15.0%**	**15.0%**	**15.0%**	**15.0%**	**14.5%**	**14.5%**	**14.0%**	**14.0%**	**13.5%**	**13.5%**
IB	Domestic financial	84.032	83.380	100.089	99.574	96.885	100.000		100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
IB (TB)	Trading Book	75.512	73.909	89.231	89.249	87.539	90.000	*10%*	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000
IB (BB)	Banking Book	8.520	9.471	10.857	10.325	9.346	10.000	*25%*	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
CORP	Domestic non-financial	382.101	389.051	385.407	395.915	385.251	399.263		407.663	414.020	419.944	417.036	422.284	426.846	431.126	435.450	439.422	443.575
CORP (TB)	Trading Book	0.009	0.013	0.019	0.019	0.022	0.023	*25%*	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
CORP (BB)	Banking Book	382.092	389.038	385.389	395.896	385.228	399.240	*100%*	407.642	413.999	419.923	417.015	422.263	426.825	431.105	435.429	439.401	443.554
	%oya	2.3	1.8	-0.9	2.7	-2.7	3.6		2.1	1.6	1.4	-0.7	1.3	1.1	1.0	1.0	0.9	0.9
HH	Household	113.207	110.745	111.631	115.593	114.501	118.666		121.162	123.052	124.813	123.948	125.508	126.864	128.136	129.421	130.602	131.836
MORT	Mortgages	56.603	55.372	55.815	57.797	57.251	58.000	*50%*	60.000	62.000	64.000	66.000	67.000	68.000	69.000	71.000	72.000	73.000
CC	Other	56.603	55.372	55.815	57.797	57.251	60.666	*100%*	61.162	61.052	60.813	57.948	58.508	58.864	59.136	58.421	58.602	58.836
EXTA	External	2.654	2.816	3.278	3.184	2.354	2.438		2.448	2.480	2.510	2.495	2.505	2.528	2.533	2.554	2.557	2.578
EXTA (HG)	High-grade	2.469	2.602	3.000	2.906	2.148	2.224	*25%*	2.234	2.263	2.290	2.277	2.286	2.307	2.311	2.331	2.334	2.352
EXTA (EM)	Risky (EM)	0.185	0.213	0.278	0.278	0.206	0.213	*100%*	0.214	0.217	0.220	0.218	0.219	0.221	0.222	0.224	0.224	0.226
	Fixed Assets	7.286	7.031	6.745	6.655	6.688	6.927	*100%*	6.956	7.047	7.132	7.090	7.118	7.183	7.197	7.258	7.267	7.325
	Other Assets	53.921	60.026	72.684	90.361	66.546	68.921	*100%*	69.208	70.115	70.961	70.546	70.826	71.474	71.610	72.219	72.306	72.888
RWA	Risk-weighted assets	538.690	549.780	561.211	592.122	556.177	577.029		587.246	595.501	603.126	597.892	604.511	610.650	615.853	621.138	625.889	631.422
Bank Liabilities		710.696	709.091	725.910	767.866	746.821	775.078		777.906	788.479	797.969	792.944	796.146	803.767	805.249	812.416	813.315	820.150
M1	Retail	541.691	544.356	558.696	572.733	587.313	602.690		611.551	619.027	626.233	627.471	634.282	640.654	646.863	653.132	659.193	665.409
M2	Domestic financial	42.808	61.983	64.160	84.197	71.497	73.369		74.447	75.358	76.235	76.385	77.215	77.990	78.746	79.509	80.247	81.004
M3	Wholesale (non-capital)	44.397	19.927	19.659	17.864	17.832	27.003		19.624	21.585	22.774	16.323	11.679	11.961	6.290	6.236	0.153	-0.173
	Short-term	30.423	13.789	14.842	13.641	13.410	20.307		14.757	16.232	17.127	12.275	8.783	8.995	4.730	4.689	0.115	-0.130
	Long-term	13.973	6.137	4.817	4.223	4.422	6.696		4.866	5.353	5.648	4.048	2.896	2.966	1.560	1.546	0.038	-0.043
EXTL	External	18.728	17.504	21.596	20.479	17.725	18.189		18.457	18.682	18.900	18.937	19.143	19.335	19.523	19.712	19.895	20.082
	Other	63.072	65.320	61.798	72.594	52.454	53.827		53.827	53.827	53.827	53.827	53.827	53.827	53.827	53.827	53.827	53.827
Capital		37.297	40.301	42.692	45.422	53.449	53.749		54.372	54.713	55.396	55.427	55.599	55.760	55.916	56.075	56.228	56.384
T2	Tier II	10.025	10.832	11.475	12.209	15.688	15.600		16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000
T1	Tier I	27.272	29.468	31.217	33.213	37.761	38.149		38.372	38.713	39.396	39.427	39.599	39.760	39.916	40.075	40.228	40.384
TCE	Core	17.803	18.366	18.637	19.462	22.940	22.940		22.940	23.092	23.593	23.593	23.593	23.593	23.593	23.593	23.593	23.593
T1-TCE	Non-core	9.470	11.103	12.580	13.751	14.821	15.209		15.432	15.621	15.803	15.834	16.006	16.167	16.323	16.482	16.635	16.791
REGCAP	Regulatory	37.297	40.301	42.692	45.422	53.449	53.749		54.372	54.713	55.396	55.427	55.599	55.760	55.916	56.075	56.228	56.384
REGADJ	Regulatory Adjustments	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Key Capital ratios																		
REGCAP/RWA	Regulatory Capital	6.9%	7.3%	7.6%	7.7%	9.6%	9.3%		9.3%	9.2%	9.2%	9.3%	9.2%	9.1%	9.1%	9.0%	9.0%	8.9%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***
BUFCAP	National buffer (%pts)	*-1.1%*	*-0.7%*	*-0.4%*	*-0.3%*	*1.6%*	1.3%		1.3%	1.2%	1.2%	1.3%	1.2%	1.1%	1.1%	1.0%	1.0%	0.9%
T1/RWA	Tier I	5.1%	5.4%	5.6%	5.6%	6.8%	6.6%		6.5%	6.5%	6.5%	6.6%	6.6%	6.5%	6.5%	6.5%	6.4%	6.4%
TCE/RWA	Core Tier I	3.3%	3.3%	3.3%	3.3%	4.1%	4.0%		3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.8%	3.8%	3.7%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***	***4.0%***
BUFCAP (T1)	National buffer (%pts)	*1.1%*	*1.4%*	*1.6%*	*1.6%*	*2.8%*	2.6%		2.5%	2.5%	2.5%	2.6%	2.6%	2.5%	2.5%	2.5%	2.4%	2.4%
	Required buffer	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%		1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
LEVRAT	Leverage ratio	20.1	18.6	10.6	10.5	10.2	15.4		15.3	15.4	15.4	15.3	15.3	15.4	15.4	15.5	15.5	15.5

Japan: Base Scenario

¥ trillion		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						90.1	86.2	85.7	85.4	86.9	85.0	84.9	83.2	83.1	81.5	81.5
	Net stable funding ratio						81.9	81.4	81.2	81.1	81.5	81.3	81.2	81.1	81.0	80.9	80.9
	Cash/Assets	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Bank Core Capital Supply Model																	
Total new Core Capital							0.000	0.000	0.152	0.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NEWTCE	Required new issuance						0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RROE	Core equity shadow price	1.8%	2.1%	4.0%	4.7%	12.7%	9.8%	6.3%	6.8%	6.3%	6.4%	5.2%	4.8%	4.7%	4.6%	4.5%	4.4%
REDEF	Redefinition effects						0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PROFRET	Retained income	2.102	1.699	1.062	0.000	0.000	0.000	0.000	0.152	0.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PROFRET/PROF	% of profits retained	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	0%	0%	0%	0%	0%	0%
Banking Sector P&L Model																	
Interest earnings		11.609	13.020	14.332	13.229	13.147	11.644	10.800	11.568	11.554	12.532	12.107	12.057	12.107	12.156	12.211	12.252
	Cash	0.000	0.010	0.038	0.039	0.008	0.008	0.008	0.008	0.008	0.021	0.021	0.021	0.022	0.022	0.022	0.022
FFUNDS	Rate of return	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
	Government bonds	1.316	1.534	1.334	1.361	1.614	1.590	1.686	1.759	1.781	1.787	1.753	1.733	1.710	1.686	1.662	1.637
JGB	JGB yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	Domestic financial	1.605	1.872	1.974	1.951	1.8095	1.772	0.640	0.650	0.650	0.650	0.650	0.650	0.650	0.650	0.650	0.650
	Trading Book	1.443	1.670	1.755	1.744	1.628	1.598	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
BOND	Spread over JGBs	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Banking Book	0.162	0.201	0.219	0.207	0.181	0.174	0.190	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
	Rate of return	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (BANK)	Spread over JGBs	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Domestic non-financial	5.432	7.671	8.440	7.237	8.172	7.033	7.303	7.947	7.938	8.538	8.240	8.231	8.300	8.367	8.441	8.503
	Trading Book	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (CORP)	**Lending spread**	**0.08%**	**0.25%**	**0.53%**	**0.40%**	**0.75%**	**0.49%**	**0.41%**	**0.43%**	**0.40%**	**0.54%**	**0.46%**	**0.44%**	**0.43%**	**0.43%**	**0.43%**	**0.43%**
	Banking Book	5.432	7.671	8.439	7.237	8.172	7.033	7.302	7.946	7.937	8.538	8.240	8.231	8.299	8.367	8.440	8.502
	10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (CORP)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.49%	0.41%	0.43%	0.40%	0.54%	0.46%	0.44%	0.43%	0.43%	0.43%	0.43%
	Household	0.0865	0.4251	1.1143	0.9783	0.9842	0.6914	0.6116	0.6523	0.6242	0.9829	0.8900	0.8691	0.8731	0.8772	0.8835	0.8869
	Mortgages	0.0433	0.2125	0.5571	0.4892	0.4921	0.3417	0.3009	0.3259	0.3173	0.5137	0.4745	0.4649	0.4691	0.4768	0.4859	0.4900
	Overnight rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
SPREAD (HH)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.49%	0.41%	0.43%	0.40%	0.54%	0.46%	0.44%	0.43%	0.43%	0.43%	0.43%
	Other	0.043	0.213	0.557	0.489	0.492	0.350	0.311	0.326	0.307	0.469	0.415	0.404	0.404	0.400	0.398	0.397
	Overnight rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
SPREAD (HH)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.49%	0.41%	0.43%	0.40%	0.54%	0.46%	0.44%	0.43%	0.43%	0.43%	0.43%
	Real borrowing rate	**1.24%**	**1.34%**	**1.76%**	**1.62%**	**1.84%**	**1.35%**	**1.03%**	**0.87%**	**0.74%**	**1.18%**	**1.10%**	**1.06%**	**1.04%**	**1.02%**	**1.03%**	**1.03%**
	External	0.054	0.058	0.065	0.069	0.059	0.050	0.051	0.051	0.052	0.052	0.052	0.053	0.053	0.053	0.053	0.054
	High grade	0.048	0.051	0.056	0.059	0.051	0.044	0.045	0.045	0.046	0.046	0.046	0.046	0.046	0.046	0.047	0.047
	Rate of return	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Risky (EM)	0.006	0.007	0.009	0.010	0.008	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	Rate of return	2.00%	2.00%	2.00%	2.00%	2.00%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (EXTA)	Lending spread	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	Earnings residual	3.115	1.451	1.367	1.595	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
ON	Overnight call money rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
BOND	10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Interest expenses		2.864	4.5323	5.740	4.526	2.681	2.247	2.357	2.433	2.464	3.545	3.536	3.558	3.576	3.593	3.608	3.623
	Retail	2.265	3.722	4.749	3.522	2.086	1.785	1.821	1.846	1.868	2.821	2.839	2.869	2.897	2.925	2.953	2.980
	Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM1	Spread over official	0.42%	0.56%	0.38%	0.15%	0.25%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
	Domestic financial	0.09	0.17	0.42	0.46	0.20	0.181	0.185	0.187	0.189	0.305	0.307	0.310	0.313	0.317	0.320	0.323

Japan: Base Scenario

¥ *trillion*			2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
		Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM2		Spread over official	0.19%	0.21%	0.19%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
		Wholesale (non-capital) anc	0.875	1.172	1.064	0.946	0.778	0.663	0.733	0.782	0.788	0.800	0.771	0.760	0.746	0.732	0.716	0.700
		Short-term	-0.001	0.028	0.067	0.065	0.014	0.017	0.018	0.015	0.017	0.037	0.026	0.022	0.017	0.012	0.006	0.000
		Key policy rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM3		Spread over official	0.00%	0.00%	0.00%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Long-term	0.877	1.144	0.997	0.882	0.763	0.646	0.715	0.766	0.771	0.763	0.745	0.738	0.729	0.720	0.710	0.700
		10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
RATEM4		Spread over official	-0.21%	-0.20%	-0.21%	-0.22%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%
		External	0.020	0.018	0.020	0.021	0.019	0.018	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.020	0.020
RATEEXTL		Average interest rate	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
		Expenses residual	-0.381	-0.554	-0.510	-0.422	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400
Net interest earnings			8.745	8.488	8.592	8.704	10.466	9.398	8.442	9.135	9.090	8.987	8.570	8.499	8.531	8.563	8.603	8.629
OOE	Other earnings		6.417	6.159	6.834	5.718	2.574	2.641	2.680	2.713	2.745	2.750	2.780	2.808	2.835	2.863	2.889	2.916
NIC	Non-interest costs		10.412	10.336	11.976	16.032	14.000	12.967	11.861	11.412	10.404	9.384	9.017	8.657	8.524	8.394	8.262	8.133
Operating profits (pre-credit losses)			4.750	4.312	3.450	-1.610	-0.960	-0.928	-0.738	0.435	1.430	2.353	2.333	2.650	2.842	3.032	3.230	3.413
CREDLOSS	Credit Losses (-)		1.178	0.428	-0.049	0.312	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Other		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Income before tax			5.928	4.739	3.401	-1.298	-0.868	-0.928	-0.738	0.435	1.430	2.353	2.333	2.650	2.842	3.032	3.230	3.413
	Tax		1.725	1.341	1.276	0.698	0.217	0.000	0.000	0.131	0.429	0.706	0.700	0.795	0.853	0.910	0.969	1.024
	Extraordinary gains, net		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net Income			4.203	3.399	2.125	-1.996	-1.084	-0.928	-0.738	0.305	1.001	1.647	1.633	1.855	1.989	2.122	2.261	2.389
ROE		Return on Equity	11.40%	8.76%	5.12%	-4.53%	-2.19%	-1.73%	-1.37%	0.56%	1.82%	2.97%	2.94%	3.33%	3.56%	3.79%	4.03%	4.24%
ROA		Return on Assets	0.56%	0.45%	0.28%	-0.25%	-0.13%	-0.11%	-0.09%	0.04%	0.12%	0.19%	0.19%	0.22%	0.23%	0.25%	0.26%	0.27%
Macroeconomic Framework																		
Nominal GDP growth			0.7	1.1	1.6	-2.0	-6.1	2.6	1.5	1.2	1.2	0.2	1.1	1.0	1.0	1.0	0.9	0.9
	Residual							*0.5*										
RGDPG		Real growth	1.9	2.0	2.3	-1.2	-5.2	3.4	2.0	1.6	1.4	0.6	1.5	1.4	1.3	1.3	1.3	1.3
PGDPG		GDP deflator	-1.2	-1.0	-0.8	-0.8	-1.0	-0.8	-0.5	-0.3	-0.2	-0.4	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4
		Output gap	0.4	1.7	3.5	2.3	-3.3	-0.2	1.5	3.0	3.8	2.6	2.6	2.7	2.8	2.9	2.8	2.8
		Employment (thousands)	63560	63820	64120	63850	62820	61978	62469	62669	62774	62754	62698	62785	62849	62904	62952	62997
		%oya	0.4	0.4	0.5	-0.4	-1.6	-1.3	0.8	0.3	0.2	0.0	-0.1	0.1	0.1	0.1	0.1	0.1
Risk-weighted assets		%oya	3.2	2.1	2.1	5.5	-6.1	3.7	1.8	1.4	1.3	-0.9	1.1	1.0	0.9	0.9	0.8	0.9
Bank assets			748	749	769	813	800	829	832	843	853	848	852	860	861	868	870	877
		%oya	1.1	0.2	2.6	5.8	-1.6	3.6	0.4	1.3	1.2	-0.6	0.4	0.9	0.2	0.9	0.1	0.8
		%GDP	149.0	147.7	149.1	161.0	168.8	170.4	168.6	168.8	168.8	167.5	166.4	166.2	164.9	164.7	163.4	163.2
Bank credit to private sector			495	500	497	512	500	518	529	537	545	541	548	554	559	565	570	575
		%oya	2.9	0.9	-0.6	2.9	-2.3	3.6	2.1	1.6	1.4	-0.7	1.3	1.1	1.0	1.0	0.9	0.9
		%GDP	98.7	98.5	96.4	101.3	105.4	106.5	107.1	107.5	107.8	106.8	107.0	107.1	107.1	107.2	107.1	107.1
Other credit			1010	974	943	844	844	872	890	904	917	914	926	937	948	958	968	978
		%oya	-2.6	-3.5	-3.2	-10.4	0.0	3.3	2.0	1.6	1.5	-0.3	1.3	1.2	1.1	1.1	1.0	1.1
		%GDP	201.2	191.9	183.0	167.2	178.1	179.3	180.3	180.9	181.5	180.5	181.0	181.3	181.5	181.8	181.9	182.2
Private sector credit		¥ trillion	1505	1474	1440	1356	1344	1390	1419	1441	1462	1455	1474	1491	1507	1523	1538	1554
		%oya	-0.9	-2.1	-2.3	-5.8	-0.9	3.4	2.1	1.6	1.5	-0.5	1.3	1.1	1.1	1.1	1.0	1.0
Nominal GDP			501.883	507.473	515.352	505.066	474.049	486.460	493.612	499.647	505.463	506.462	511.960	517.103	522.114	527.175	532.067	537.084

Japan: Regulatory Change Scenario

¥ trillion		2005	2006	2007	2008	2009	2010		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
								Projection period										
Bank Balance Sheet Model								*No new risk-weighting*										
Bank Assets		747.994	749.391	768.602	813.288	800.269	828.286		841.634	860.726	841.206	856.045	853.095	860.565	884.644	889.717	893.217	898.539
LIQ	Cash	8.098	7.996	8.041	8.441	7.765	8.283	*0%*	8.416	8.607	8.412	8.560	8.531	8.606	8.846	8.897	8.932	8.985
GOV	Government bonds	96.695	88.346	80.727	93.566	120.279	124.243	*0%*	126.245	146.323	143.005	145.528	145.026	146.296	150.390	151.252	151.847	152.752
LIQ/TA	Liquid asset ratio	14.0%	12.9%	11.5%	12.5%	16.0%	**16.0%**		**16.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**	**18.0%**
IB	Domestic financial	84.032	83.380	100.089	99.574	96.885	100.000		100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
IB (TB)	Trading Book	75.512	73.909	89.231	89.249	87.539	90.000	*30%*	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000
IB (BB)	Banking Book	8.520	9.471	10.857	10.325	9.346	10.000	*25%*	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
CORP	Domestic non-financial	382.101	389.051	385.407	395.915	385.251	398.953		406.624	404.327	393.408	401.708	400.058	404.236	417.704	420.541	422.499	425.476
CORP (TB)	Trading Book	0.009	0.013	0.019	0.019	0.022	0.023	*75%*	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
CORP (BB)	Banking Book	382.092	389.038	385.389	395.896	385.228	398.930	*100%*	406.603	404.306	393.387	401.687	400.037	404.215	417.683	420.520	422.478	425.455
	%oya	2.3	1.8	-0.9	2.7	-2.7	3.6		1.9	-0.6	-2.7	2.1	-0.4	1.0	3.3	0.7	0.5	0.7
HH	Household	113.207	110.745	111.631	115.593	114.501	118.574		120.854	120.171	116.926	119.393	118.902	120.144	124.147	124.990	125.572	126.457
MORT	Mortgages	56.603	55.372	55.815	57.797	57.251	58.000	*50%*	60.000	62.000	64.000	66.000	67.000	68.000	69.000	71.000	72.000	73.000
CC	Other	56.603	55.372	55.815	57.797	57.251	60.574	*100%*	60.854	58.171	52.926	53.393	51.902	52.144	55.147	53.990	53.572	53.457
EXTA	External	2.654	2.816	3.278	3.184	2.354	2.436		2.475	2.532	2.474	2.518	2.509	2.531	2.602	2.617	2.627	2.643
EXTA (HG)	High-grade	2.469	2.602	3.000	2.906	2.148	2.223	*25%*	2.259	2.310	2.257	2.297	2.289	2.309	2.374	2.388	2.397	2.411
EXTA (EM)	Risky (EM)	0.185	0.213	0.278	0.278	0.206	0.213	*100%*	0.217	0.222	0.217	0.220	0.220	0.222	0.228	0.229	0.230	0.231
	Fixed Assets	7.286	7.031	6.745	6.655	6.688	6.922	*100%*	7.034	7.193	7.030	7.154	7.130	7.192	7.393	7.436	7.465	7.509
	Other Assets	53.921	60.026	72.684	90.361	66.546	68.876	*100%*	69.986	71.573	69.950	71.184	70.939	71.560	73.562	73.984	74.275	74.718
RWA	Risk-weighted assets	538.690	549.780	561.211	592.122	556.177	576.576		604.773	602.558	585.590	596.729	593.815	599.426	618.623	621.772	624.135	627.988
Bank Liabilities		710.696	709.091	725.910	767.866	746.821	774.543		784.780	799.234	779.824	792.504	783.062	789.153	812.912	817.852	821.235	826.421
M1	Retail	541.691	544.356	558.696	572.733	587.313	602.474		610.836	612.398	608.013	616.969	618.980	625.096	637.780	643.022	647.682	653.080
M2	Domestic financial	42.808	61.983	64.160	84.197	71.497	73.342		72.160	70.180	67.572	66.540	64.761	63.458	62.842	61.473	60.074	58.773
M3	Wholesale (non-capital)	44.397	19.927	19.659	17.864	17.832	26.736		29.540	44.366	32.081	36.566	26.833	27.925	39.234	40.143	40.123	41.049
	Short-term	30.423	13.789	14.842	13.641	13.410	18.715		17.724	24.401	16.040	16.455	10.733	9.774	11.770	10.036	8.025	8.210
	Long-term	13.973	6.137	4.817	4.223	4.422	8.021		11.816	19.964	16.040	20.112	16.100	18.151	27.464	30.107	32.099	32.840
EXTL	External	18.728	17.504	21.596	20.479	17.725	18.183		18.435	18.482	18.350	18.620	18.681	18.866	19.248	19.407	19.547	19.710
	Other	63.072	65.320	61.798	72.594	52.454	53.808		53.808	53.808	53.808	53.808	53.808	53.808	53.808	53.808	53.808	53.808
Capital		37.297	40.301	42.692	45.422	53.449	53.743		56.854	61.493	61.382	63.541	70.032	71.412	71.732	71.864	71.982	72.118
T2	Tier II	10.025	10.832	11.475	12.209	15.688	15.600		16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000
T1	Tier I	27.272	29.468	31.217	33.213	37.761	38.143		40.854	45.493	45.382	47.541	54.032	55.412	55.732	55.864	55.982	56.118
TCE	Core	17.803	18.366	18.637	19.462	22.940	22.940		25.440	30.039	30.039	31.972	38.413	39.638	39.638	39.638	39.638	39.638
T1-TCE	Non-core	9.470	11.103	12.580	13.751	14.821	15.203		15.414	15.454	15.343	15.569	15.620	15.774	16.094	16.226	16.344	16.480
REGCAP	Regulatory	37.297	40.301	42.692	45.422	53.449	53.743		56.854	61.493	61.382	63.541	70.032	71.412	71.732	71.864	71.982	72.118
REGADJ	Regulatory Adjustments	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Key Capital ratios																		
REGCAP/RWA	Regulatory Capital	6.9%	7.3%	7.6%	7.7%	9.6%	9.3%		9.4%	10.2%	10.5%	10.6%	11.8%	11.9%	11.6%	11.6%	11.5%	11.5%
BIS	*Regulatory minimum*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	***8.0%***		***8.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***
BUFCAP	National buffer (%pts)	*-1.1%*	*-0.7%*	*-0.4%*	*-0.3%*	*1.6%*	1.3%		1.4%	0.2%	0.5%	0.6%	1.8%	1.9%	1.6%	1.6%	1.5%	1.5%
T1/RWA	Tier I	5.1%	5.4%	5.6%	5.6%	6.8%	6.6%		6.8%	7.5%	7.7%	8.0%	9.1%	9.2%	9.0%	9.0%	9.0%	8.9%
TCE/RWA	Core Tier I	3.3%	3.3%	3.3%	3.3%	4.1%	4.0%		4.2%	5.0%	5.1%	5.4%	6.5%	6.6%	6.4%	6.4%	6.4%	6.3%
BIS(T1)	*Regulatory minimum*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	***4.0%***		***4.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***	***6.0%***
BUFCAP (T1)	National buffer (%pts)	*1.1%*	*1.4%*	*1.6%*	*1.6%*	*2.8%*	2.6%		2.8%	1.5%	1.7%	2.0%	3.1%	3.2%	3.0%	3.0%	3.0%	2.9%
	Required buffer	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%		1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
LEVRAT	Leverage ratio	20.1	18.6	10.6	10.5	10.2	15.4		14.8	14.0	13.7	13.5	12.2	12.1	12.3	12.4	12.4	12.5

Japan: Regulatory Change Scenario

¥ *trillion*		2005	2006	2007	2008	2009	Projection period 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Key Liquidity ratios																	
	Liquidity coverage ratio						90.8	92.1	102.7	106.3	107.1	110.7	111.9	112.1	113.5	115.1	115.5
	Net stable funding ratio						82.2	82.8	85.0	86.0	86.4	87.4	87.8	88.1	88.5	89.0	89.1
	Cash/Assets	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Bank Core Capital Supply Model																	
Total new Core Capital							0.000	2.500	4.599	0.000	1.933	6.440	1.225	0.000	0.000	0.000	0.000
NEWTCE	Required new issuance						0.000	2.500	7.500	4.000	4.000	4.000	0.000	0.000	0.000	0.000	0.000
RROE	Core equity shadow price	1.8%	2.1%	4.0%	4.7%	12.7%	9.8%	6.4%	12.1%	22.2%	13.8%	14.8%	13.8%	7.5%	7.1%	7.7%	7.5%
REDEF	Redefinition effects						0.000	0.000	-4.000	-4.000	-4.000	0.000	0.000	0.000	0.000	0.000	0.000
PROFRET	Retained income	2.102	1.699	1.062	0.000	0.000	0.000	0.000	1.099	0.000	1.933	2.440	1.225	0.000	0.000	0.000	0.000
PROFRET/PROF	% of profits retained	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	25%	0%	0%	0%	0%
Banking Sector P&L Model																	
Interest earnings		11.609	13.020	14.332	13.229	13.147	11.719	11.113	14.193	18.102	15.672	16.897	16.548	14.058	14.228	14.563	14.575
	Cash	0.000	0.010	0.038	0.039	0.008	0.008	0.008	0.009	0.009	0.021	0.021	0.021	0.022	0.022	0.022	0.022
FFUNDS	Rate of return	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
	Government bonds	1.316	1.534	1.334	1.361	1.614	1.589	1.753	2.044	2.170	2.164	2.179	2.185	2.225	2.262	2.273	2.284
JGB	JGB yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	Domestic financial	1.605	1.872	1.974	1.951	1.8095	1.772	0.640	0.650	0.650	0.650	0.650	0.650	0.650	0.650	0.650	0.650
	Trading Book	1.443	1.670	1.755	1.744	1.628	1.598	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
BOND	Spread over JGBs	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Banking Book	0.162	0.201	0.219	0.207	0.181	0.174	0.190	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
	Rate of return	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (BANK)	Spread over JGBs	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Domestic non-financial	5.432	7.671	8.440	7.237	8.172	7.091	7.490	9.733	12.628	10.609	11.551	11.280	9.354	9.479	9.735	9.742
	Trading Book	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
	Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (CORP)	**Lending spread**	**0.08%**	**0.25%**	**0.53%**	**0.40%**	**0.75%**	**0.51%**	**0.46%**	**0.90%**	**1.67%**	**1.17%**	**1.38%**	**1.30%**	**0.78%**	**0.76%**	**0.81%**	**0.80%**
	Banking Book	5.432	7.671	8.439	7.237	8.172	7.090	7.490	9.732	12.627	10.608	11.550	11.280	9.353	9.478	9.735	9.742
	10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (CORP)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.51%	0.46%	0.90%	1.67%	1.17%	1.38%	1.30%	0.78%	0.76%	0.81%	0.80%
	Household	0.0865	0.4251	1.1143	0.9783	0.9842	0.7090	0.6699	1.2055	2.0935	1.6761	1.9436	1.8586	1.2533	1.2601	1.3274	1.3204
	Mortgages	0.0433	0.2125	0.5571	0.4892	0.4921	0.3506	0.3302	0.6102	1.1125	0.9220	1.0848	1.0496	0.7028	0.7081	0.7576	0.7596
	Overnight rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
SPREAD (HH)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.51%	0.46%	0.90%	1.67%	1.17%	1.38%	1.30%	0.78%	0.76%	0.81%	0.80%
	Other	0.043	0.213	0.557	0.489	0.492	0.358	0.340	0.595	0.981	0.754	0.859	0.809	0.550	0.552	0.570	0.561
	Overnight rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
SPREAD (HH)	Lending spread	0.08%	0.25%	0.53%	0.40%	0.75%	0.51%	0.46%	0.90%	1.67%	1.17%	1.38%	1.30%	0.78%	0.76%	0.81%	0.80%
	Real borrowing rate	**1.24%**	**1.34%**	**1.76%**	**1.62%**	**1.84%**	**1.37%**	**1.09%**	**1.43%**	**2.24%**	**1.85%**	**2.09%**	**1.95%**	**1.28%**	**1.32%**	**1.40%**	**1.41%**
	External	0.054	0.058	0.065	0.069	0.059	0.050	0.051	0.052	0.052	0.052	0.052	0.053	0.054	0.054	0.055	0.055
	High grade	0.048	0.051	0.056	0.059	0.051	0.044	0.045	0.046	0.046	0.046	0.046	0.046	0.047	0.048	0.048	0.048
	Rate of return	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Risky (EM)	0.006	0.007	0.009	0.010	0.008	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	Rate of return	2.00%	2.00%	2.00%	2.00%	2.00%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
SPREAD (EXTA)	Lending spread	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	Earnings residual	3.115	1.451	1.367	1.595	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
ON	Overnight call money rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
BOND	10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Interest expenses		2.864	4.5323	5.740	4.526	2.681	2.371	2.690	3.046	3.257	4.121	4.314	4.296	4.464	4.635	4.700	4.746
	Retail	2.265	3.722	4.749	3.522	2.086	1.785	1.820	1.835	1.831	2.756	2.781	2.799	2.841	2.882	2.904	2.927
	Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM1	Spread over official	0.42%	0.56%	0.38%	0.15%	0.25%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%

Japan: Regulatory Change Scenario

¥ *trillion*							Projection period										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Domestic financial	0.09	0.17	0.42	0.46	0.20	0.181	0.182	0.178	0.172	0.268	0.263	0.256	0.253	0.249	0.243	0.238
	Overnight call money r	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM2	Spread over official	0.19%	0.21%	0.19%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
	Wholesale (non-capital) an	0.875	1.172	1.064	0.946	0.778	0.788	1.070	1.415	1.636	1.478	1.652	1.622	1.751	1.886	1.933	1.962
	Short-term	-0.001	0.028	0.067	0.065	0.014	0.016	0.018	0.021	0.020	0.041	0.034	0.026	0.027	0.027	0.023	0.020
	Key policy rate	0.00%	0.13%	0.47%	0.46%	0.11%	0.10%	0.10%	0.10%	0.10%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
RATEM3	Spread over official	0.00%	0.00%	0.00%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Long-term	0.877	1.144	0.997	0.882	0.763	0.772	1.051	1.394	1.616	1.438	1.618	1.596	1.724	1.858	1.910	1.941
	10yr bond yield	1.36%	1.74%	1.65%	1.45%	1.34%	1.30%	1.40%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
RATEM4	Spread over official	-0.21%	-0.20%	-0.21%	-0.22%	-0.20%	0.00%	0.25%	0.50%	0.75%	0.50%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
	External	0.020	0.018	0.020	0.021	0.019	0.018	0.018	0.018	0.018	0.018	0.019	0.019	0.019	0.019	0.019	0.020
RATEEXTL	Average interest rate	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
	Expenses residual	-0.381	-0.554	-0.510	-0.422	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400	-0.400
Net interest earnings		8.745	8.488	8.592	8.704	10.466	9.347	8.423	11.147	14.845	11.551	12.583	12.252	9.594	9.593	9.863	9.829
OOE	Other earnings	6.417	6.159	6.834	5.718	2.574	2.640	2.677	2.684	2.665	2.704	2.713	2.740	2.795	2.818	2.839	2.862
NIC	Non-interest costs	10.412	10.336	11.976	16.032	14.000	12.961	11.845	10.691	9.545	8.731	8.323	7.989	7.952	7.818	7.679	7.551
Operating profits (pre-credit losses)		4.750	4.312	3.450	-1.610	-0.960	-0.973	-0.745	3.140	7.964	5.524	6.973	7.002	4.437	4.593	5.022	5.140
CREDLOSS	Credit Losses (-)	1.178	0.428	-0.049	0.312	0.092	0.000	0.000	0.000	-8.412	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Other	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Income before tax		5.928	4.739	3.401	-1.298	-0.868	-0.973	-0.745	3.140	-0.448	5.524	6.973	7.002	4.437	4.593	5.022	5.140
	Tax	1.725	1.341	1.276	0.698	0.217	0.000	0.000	0.942	0.000	1.657	2.092	2.101	1.331	1.378	1.507	1.542
	Extraordinary gains, net	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net Income		4.203	3.399	2.125	-1.996	-1.084	-0.973	-0.745	2.198	-0.448	3.866	4.881	4.901	3.106	3.215	3.516	3.598
ROE	Return on Equity	11.40%	8.76%	5.12%	-4.53%	-2.19%	-1.82%	-1.35%	3.71%	-0.73%	6.19%	7.31%	6.93%	4.34%	4.48%	4.89%	4.99%
ROA	Return on Assets	0.56%	0.45%	0.28%	-0.25%	-0.13%	-0.12%	-0.09%	0.26%	-0.05%	0.46%	0.57%	0.57%	0.36%	0.36%	0.39%	0.40%
Macroeconomic Framework																	
Nominal GDP growth		0.7	1.1	1.6	-2.0	-6.1	2.6	1.4	0.3	-0.7	1.5	0.3	1.0	2.0	0.8	0.7	0.8
	Residual						*0.5*										
RGDPG	Real growth	1.9	2.0	2.3	-1.2	-5.2	3.4	1.9	0.7	-0.2	1.9	0.8	1.4	2.3	1.1	1.1	1.2
PGDPG	GDP deflator	-1.2	-1.0	-0.8	-0.8	-1.0	-0.8	-0.5	-0.4	-0.5	-0.4	-0.5	-0.4	-0.3	-0.3	-0.3	-0.4
	Output gap	0.4	1.7	3.5	2.3	-3.3	-0.2	1.5	2.2	1.9	2.3	2.0	2.5	3.6	3.2	2.9	2.7
	Employment (thousands)	63560	63820	64120	63850	62820	61974	62450	62535	62294	62146	62238	62207	62386	62585	62575	62570
	%oya	0.4	0.4	0.5	-0.4	-1.6	-1.3	0.8	0.1	-0.4	-0.2	0.1	-0.1	0.3	0.3	0.0	0.0
Risk-weighted assets	%oya	3.2	2.1	2.1	5.5	-6.1	3.7	4.9	-0.4	-2.8	1.9	-0.5	0.9	3.2	0.5	0.4	0.6
Bank assets		748	749	769	813	800	828	842	861	841	856	853	861	885	890	893	899
	%oya	1.1	0.2	2.6	5.8	-1.6	3.5	1.6	2.3	-2.3	1.8	-0.3	0.9	2.8	0.6	0.4	0.6
	%GDP	149.0	147.7	149.1	161.0	168.8	170.3	170.7	174.1	171.4	171.9	170.8	170.6	171.8	171.4	170.9	170.5
Bank credit to private sector		495	500	497	512	500	518	527	524	510	521	519	524	542	546	548	552
	%oya	2.9	0.9	-0.6	2.9	-2.3	3.6	1.9	-0.6	-2.7	2.1	-0.4	1.0	3.3	0.7	0.5	0.7
	%GDP	98.7	98.5	96.4	101.3	105.4	106.4	107.0	106.1	104.0	104.6	103.9	103.9	105.3	105.1	104.8	104.7
Other credit		1010	974	943	844	844	872	888	886	869	886	886	896	923	931	937	945
	%oya	-2.6	-3.5	-3.2	-10.4	0.0	3.2	1.9	-0.2	-2.0	2.0	-0.1	1.1	3.0	0.8	0.7	0.9
	%GDP	201.2	191.9	183.0	167.2	178.1	179.3	180.1	179.3	177.0	178.0	177.3	177.6	179.3	179.4	179.2	179.3
Private sector credit	¥ trillion	1505	1474	1440	1356	1344	1389	1416	1411	1379	1408	1405	1420	1465	1476	1485	1497
	%oya	-0.9	-2.1	-2.3	-5.8	-0.9	3.4	1.9	-0.3	-2.2	2.1	-0.2	1.1	3.2	0.8	0.6	0.8
Nominal GDP		501.883	507.473	515.352	505.066	474.049	486.286	493.035	494.296	490.757	497.986	499.609	504.545	514.783	519.014	522.776	527.133

Japan: Historical Dataset

¥ trillion

			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bank Balance Sheet Model																			
		Current risk-weighting																	
Bank Assets			739.021	736.296	750.356	753.968	787.778	778.647	768.250	759.138	759.231	731.754	735.588	740.103	747.994	749.391	768.602	813.288	800.269
LIQ	Cash	*0%*	13.471	12.121	11.695	13.062	11.737	9.538	10.621	8.125	8.475	9.166	9.286	8.860	8.098	7.996	8.041	8.441	7.765
GOV	Government bonds	*0%*	33.509	31.564	30.007	29.850	31.255	31.456	44.543	68.810	67.145	72.365	93.982	102.133	96.695	88.346	80.727	93.566	120.279
LIQ/TA	Liquid asset ratio		6.4%	5.9%	5.6%	5.7%	5.5%	5.3%	7.2%	10.1%	10.0%	11.1%	14.0%	15.0%	14.0%	12.9%	11.5%	12.5%	16.0%
IB	Domestic financial		64.429	65.161	60.441	52.294	66.042	61.704	72.964	70.797	71.752	84.922	86.207	88.416	84.032	83.380	100.089	99.574	96.885
IB (TB)	Trading Book	*10%*	53.152	54.365	50.192	42.527	56.092	50.916	60.528	59.694	61.251	75.534	77.942	79.524	75.512	73.909	89.231	89.249	87.539
IB (BB)	Banking Book	*25%*	11.277	10.796	10.250	9.767	9.950	10.788	12.436	11.103	10.502	9.388	8.265	8.892	8.520	9.471	10.857	10.325	9.346
CORP	Domestic non-financial		458.675	461.108	468.958	472.373	474.434	466.223	446.003	447.259	431.520	404.899	378.653	373.336	382.101	389.051	385.407	395.915	385.251
CORP (TB)	Trading Book	*25%*	0.019	0.035	0.035	0.016	0.000	0.001	0.000	0.001	0.002	0.002	0.005	0.004	0.009	0.013	0.019	0.019	0.022
CORP (BB)	Banking Book	*100%*	458.656	461.073	468.924	472.357	474.434	466.222	446.002	447.258	431.518	404.897	378.649	373.332	382.092	389.038	385.389	395.896	385.228
	%oya			0.5	1.7	0.7	0.4	-1.7	-4.3	0.3	-3.5	-6.2	-6.5	-1.4	2.3	1.8	-0.9	2.7	-2.7
HH	Household		103.467	104.886	105.041	105.589	105.089	103.165	97.692	95.465	98.175	101.906	108.215	107.957	113.207	110.745	111.631	115.593	114.501
MORT	Mortgages	*50%*	51.734	52.443	52.521	52.794	52.544	51.583	48.846	47.733	49.087	50.953	54.108	53.979	56.603	55.372	55.815	57.797	57.251
CC	Other	*100%*	51.734	52.443	52.521	52.794	52.544	51.583	48.846	47.733	49.087	50.953	54.108	53.979	56.603	55.372	55.815	57.797	57.251
EXTA	External		3.915	3.524	3.688	3.700	3.818	3.709	3.690	2.753	3.975	2.755	2.563	2.497	2.654	2.816	3.278	3.184	2.354
EXTA (HG)	High-grade	*25%*	3.643	3.280	3.433	3.444	3.554	3.452	3.434	2.562	3.675	2.590	2.408	2.334	2.469	2.602	3.000	2.906	2.148
EXTA (EM)	Risky (EM)	*100%*	0.271	0.244	0.256	0.256	0.265	0.257	0.256	0.191	0.300	0.165	0.155	0.164	0.185	0.213	0.278	0.278	0.206
	Fixed Assets	*100%*	7.327	7.159	7.090	7.089	6.897	10.504	10.014	9.713	9.332	8.893	8.183	7.492	7.286	7.031	6.745	6.655	6.688
	Other Assets	*100%*	54.229	50.774	63.435	70.012	88.506	92.348	82.723	56.216	68.856	46.847	48.499	49.411	53.921	60.026	72.684	90.361	66.546
RWA	Risk-weighted assets		607.133	606.879	626.933	636.465	657.903	655.357	622.284	594.363	593.308	547.780	527.111	522.127	538.690	549.780	561.211	592.122	556.177
Bank Liabilities			695.843	692.123	706.186	714.373	748.193	745.212	721.605	711.844	710.355	691.279	698.525	703.648	710.696	709.091	725.910	767.866	746.821
M1	Retail		430.713	438.892	461.064	471.419	484.261	497.369	508.112	505.565	515.256	517.361	524.668	532.345	541.691	544.356	558.696	572.733	587.313
M2	Domestic financial		67.046	64.639	59.030	61.956	74.615	70.107	53.185	55.858	52.338	57.252	52.513	44.992	42.808	61.983	64.160	84.197	71.497
M3	Wholesale (non-capital)		66.769	64.483	64.321	61.848	51.351	46.220	45.812	43.079	46.803	44.926	38.054	42.512	44.397	19.927	19.659	17.864	17.832
	Short-term		11.624	9.678	11.205	12.625	7.339	12.997	19.110	14.123	21.686	25.544	26.778	31.119	30.423	13.789	14.842	13.641	13.410
	Long-term		55.144	54.804	53.115	49.223	44.011	33.223	26.701	28.956	25.117	19.383	11.276	11.393	13.973	6.137	4.817	4.223	4.422
EXTL	External		45.047	42.679	42.684	38.986	36.956	26.158	18.228	19.747	21.227	18.420	21.577	20.341	18.728	17.504	21.596	20.479	17.725
	Other		86.268	81.431	79.087	80.163	101.011	105.359	96.268	87.596	74.731	53.320	61.713	63.458	63.072	65.320	61.798	72.594	52.454
Capital			43.178	44.173	44.171	39.595	39.585	33.434	46.645	47.294	48.875	40.474	37.063	36.455	37.297	40.301	42.692	45.422	53.449
T2	Tier II		11.606	11.873	11.873	10.643	10.640	8.987	12.538	12.712	13.137	10.879	9.962	9.799	10.025	10.832	11.475	12.209	15.688
T1	Tier I		31.572	32.300	32.298	28.953	28.945	24.448	34.107	34.582	35.738	29.595	27.101	26.656	27.272	29.468	31.217	33.213	37.761
TCE	Core		13.413	13.762	13.995	14.952	15.460	15.903	23.521	23.581	23.493	19.501	18.765	17.596	17.803	18.366	18.637	19.462	22.940
T1-TCE	Non-core		18.159	18.538	18.304	14.001	13.485	8.545	10.586	11.001	12.245	10.095	8.336	9.060	9.470	11.103	12.580	13.751	14.821
REGCAP	Regulatory		43.178	44.173	44.171	39.595	39.585	33.434	46.645	47.294	48.875	40.474	37.063	36.455	37.297	40.301	42.692	45.422	53.449
REGADJ	Regulatory Adjustments		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Key Capital ratios																			
REGCAP/RWA	Regulatory Capital		7.1%	7.3%	7.0%	6.2%	6.0%	5.1%	7.5%	8.0%	8.2%	7.4%	7.0%	7.0%	6.9%	7.3%	7.6%	7.7%	9.6%
BIS	*Regulatory minimum*		*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*
BUFCAP	National buffer (%pts)		*-0.9%*	*-0.7%*	*-1.0%*	*-1.8%*	*-2.0%*	*-2.9%*	*-0.5%*	*0.0%*	*0.2%*	*-0.6%*	*-1.0%*	*-1.0%*	*-1.1%*	*-0.7%*	*-0.4%*	*-0.3%*	*1.6%*
T1/RWA	Tier I		5.2%	5.3%	5.2%	4.5%	4.4%	3.7%	5.5%	5.8%	6.0%	5.4%	5.1%	5.1%	5.1%	5.4%	5.6%	5.6%	6.8%
TCE/RWA	Core Tier I		2.2%	2.3%	2.2%	2.3%	2.3%	2.4%	3.8%	4.0%	4.0%	3.6%	3.6%	3.4%	3.3%	3.3%	3.3%	3.3%	4.1%
BIS(T1)	*Regulatory minimum*		*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
BUFCAP (T1)	National buffer (%pts)		*1.2%*	*1.3%*	*1.2%*	*0.5%*	*0.4%*	*-0.3%*	*1.5%*	*1.8%*	*2.0%*	*1.4%*	*1.1%*	*1.1%*	*1.1%*	*1.4%*	*1.6%*	*1.6%*	*2.8%*
	Required buffer		1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
LEVRAT	Leverage ratio		17.1	16.7	17.0	19.0	19.9	23.3	16.5	16.1	15.5	18.1	19.8	20.3	20.1	18.6	10.6	10.5	10.2

Japan: Historical Dataset

¥ trillion

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Key Liquidity ratios																		
	Liquidity coverage ratio																	
	Net stable funding ratio																	
	Cash/Assets	1.8%	1.6%	1.6%	1.7%	1.5%	1.2%	1.4%	1.1%	1.1%	1.3%	1.3%	1.2%	1.1%	1.1%	1.0%	1.0%	1.0%
Bank Core Capital Supply Model																		
Total new Core Capital																		
NEWTCE	Required new issuance																	
RROE	Core equity shadow price			8.0%	12.3%	10.3%	14.7%	21.1%	30.0%	7.0%	11.8%	5.0%	6.7%	1.8%	2.1%	4.0%	4.7%	12.7%
REDEF	Redefinition effects																	
PROFRET	Retained income		0.079	0.000	0.000	0.000	0.000	0.797	0.000	0.000	0.000	0.000	0.647	2.102	1.699	1.062	0.000	0.000
PROFRET/PROF	% of profits retained		50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Banking Sector P&L Model																		
Interest earnings		38.539	36.358	36.840	32.678	26.812	21.898	18.737	16.013	14.127	12.062	10.913	10.652	11.609	13.020	14.332	13.229	13.147
	Cash								0.009	0.005	0.000	0.000	0.000	0.000	0.010	0.038	0.039	0.008
FFUNDS	Rate of return								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
	Government bonds								1.202	0.893	0.906	0.952	1.533	1.316	1.534	1.334	1.361	1.614
JGB	JGB yield								1.75%	1.33%	1.25%	1.01%	1.50%	1.36%	1.74%	1.65%	1.45%	1.34%
	Domestic financial								1.591	1.304	1.372	1.295	1.747	1.605	1.872	1.974	1.951	1.8095
	Trading Book								1.342	1.106	1.198	1.161	1.575	1.443	1.670	1.755	1.744	1.628
BOND	Spread over JGBs								0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Banking Book								0.2495	0.198	0.174	0.134	0.172	0.162	0.201	0.219	0.207	0.181
	Rate of return								1.75%	1.33%	1.25%	1.01%	1.50%	1.36%	1.74%	1.65%	1.45%	1.34%
SPREAD (BANK)	Spread over JGBs								0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
	Domestic non-financial								0.000	9.068	8.156	4.737	6.192	5.432	7.671	8.440	7.237	8.172
	Trading Book								0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Overnight call money rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
SPREAD (CORP)	Lending spread									0.73%	0.70%	0.20%	0.15%	0.08%	0.25%	0.53%	0.40%	0.75%
	Banking Book									9.068	8.156	4.737	6.192	5.432	7.671	8.439	7.237	8.172
	10yr bond yield									1.33%	1.25%	1.01%	1.50%	1.36%	1.74%	1.65%	1.45%	1.34%
SPREAD (CORP)	Lending spread								0.00%	0.73%	0.70%	0.20%	0.15%	0.08%	0.25%	0.53%	0.40%	0.75%
	Household								0.1040	0.7644	0.7007	0.2072	0.1588	0.0865	0.4251	1.1143	0.9783	0.9842
	Mortgages								0.0520	0.3822	0.3504	0.1036	0.0794	0.0433	0.2125	0.5571	0.4892	0.4921
	Overnight rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
SPREAD (HH)	Lending spread								0.00%	0.73%	0.70%	0.20%	0.15%	0.08%	0.25%	0.53%	0.40%	0.75%
	Other								0.052	0.382	0.350	0.104	0.079	0.043	0.213	0.557	0.489	0.492
	Overnight rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
SPREAD (HH)	Lending spread								0.00%	0.73%	0.70%	0.20%	0.15%	0.08%	0.25%	0.53%	0.40%	0.75%
	Real borrowing rate								1.78%	2.09%	2.22%	1.85%	1.19%	1.24%	1.34%	1.76%	1.62%	1.84%
	External								0.058	0.071	0.071	0.056	0.053	0.054	0.058	0.065	0.069	0.059
	High grade								0.051	0.062	0.063	0.050	0.047	0.048	0.051	0.056	0.059	0.051
	Rate of return								2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Risky (EM)								0.007	0.009	0.008	0.006	0.006	0.006	0.007	0.009	0.010	0.008
	Rate of return								2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
SPREAD (EXTA)	Lending spread								1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	Earnings residual									2.022	0.857	3.666	0.968	3.115	1.451	1.367	1.595	0.500
ON	Overnight call money rate	2.35%	1.75%	1.04%	0.50%	0.50%	0.37%	0.06%	0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
BOND	10yr bond yield	4.24%	4.39%	3.39%	3.11%	2.36%	1.51%	1.77%	1.75%	1.33%	1.25%	1.01%	1.50%	1.36%	1.74%	1.65%	1.45%	1.34%
Interest expenses		29.319	26.636	26.003	21.937	16.765	12.252	9.030	6.627	4.448	2.690	1.908	1.963	2.864	4.5323	5.740	4.526	2.681
	Retail								4.924	3.366	1.972	1.452	1.290	2.265	3.722	4.749	3.522	2.086
	Overnight call money rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
RATEM1	Spread over official								0.87%	0.60%	0.38%	0.28%	0.24%	0.42%	0.56%	0.38%	0.15%	0.25%
	Domestic financial								0.195	0.14	0.10	0.10	0.09	0.09	0.17	0.42	0.46	0.20

Japan: Historical Dataset

¥ trillion

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Overnight call money rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
RATEM2	Spread over official								0.24%	0.21%	0.19%	0.18%	0.18%	0.19%	0.21%	0.19%	0.15%	0.15%
	Wholesale (non-capital) and Other								1.954	1.250	0.894	0.575	0.940	0.875	1.172	1.064	0.946	0.778
	Short-term								0.020	0.011	-0.001	-0.003	-0.004	-0.001	0.028	0.067	0.065	0.014
	Key policy rate								0.11%	0.06%	0.00%	0.00%	0.00%	0.00%	0.13%	0.47%	0.46%	0.11%
RATEM3	Spread over official								0.01%	0.00%	-0.01%	-0.01%	-0.01%	0.00%	0.00%	0.00%	-0.01%	0.00%
	Long-term								1.934	1.239	0.895	0.577	0.944	0.877	1.144	0.997	0.882	0.763
	10yr bond yield								1.75%	1.33%	1.25%	1.01%	1.50%	1.36%	1.74%	1.65%	1.45%	1.34%
RATEM4	Spread over official								-0.13%	-0.18%	-0.21%	-0.22%	-0.22%	-0.21%	-0.20%	-0.21%	-0.22%	-0.20%
	External								0.019	0.020	0.020	0.020	0.021	0.020	0.018	0.020	0.021	0.019
RATEEXTL	Average interest rate								0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
	Expenses residual								-0.466	-0.332	-0.300	-0.237	-0.374	-0.381	-0.554	-0.510	-0.422	-0.400
Net interest earnings		9.219	9.723	10.837	10.741	10.047	9.646	9.706	9.387	9.679	9.372	9.005	8.689	8.745	8.488	8.592	8.704	10.466
OOE	Other earnings								7.113	5.707	5.729	6.645	6.267	6.417	6.159	6.834	5.718	2.574
NIC	Non-interest costs								16.054	21.089	19.910	15.138	13.053	10.412	10.336	11.976	16.032	14.000
Operating profits (pre-credit losses)									0.446	-5.703	-4.809	0.513	1.902	4.750	4.312	3.450	-1.610	-0.960
CREDLOSS	Credit Losses (-)								-0.36	-0.309	-0.159	0.479	0.702	1.178	0.428	-0.049	0.312	0.092
	Other	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Income before tax		1.514	0.800	-2.907	0.145	-4.369	-6.937	2.342	0.086	-6.012	-4.968	0.992	2.604	5.928	4.739	3.401	-1.298	-0.868
	Tax	0.712	0.643	1.170	0.237	0.548	0.615	0.749	0.262	-1.814	-0.115	1.772	1.309	1.725	1.341	1.276	0.698	0.217
	Extraordinary gains, net	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net Income		0.803	0.157	-4.077	-0.092	-4.917	-7.552	1.593	-0.175	-4.199	-4.853	-0.779	1.294	4.203	3.399	2.125	-1.996	-1.084
ROE	Return on Equity		0.36%	-9.23%	-0.22%	-12.42%	-20.69%	3.98%	-0.37%	-8.73%	-10.86%	-2.01%	3.52%	11.40%	8.76%	5.12%	-4.53%	-2.19%
ROA	Return on Assets		0.02%	-0.55%	-0.01%	-0.64%	-0.96%	0.21%	-0.02%	-0.55%	-0.65%	-0.11%	0.18%	0.56%	0.45%	0.28%	-0.25%	-0.13%
Macroeconomic Framework																		
Nominal GDP growth			1.0	1.3	2.1	2.1	-2.2	-1.3	1.1	-1.1	-1.3	-0.2	1.6	0.7	1.1	1.6	-2.0	-6.1
	Residual																	
RGDPG	Real growth	0.1	0.9	1.8	2.7	1.5	-2.2	0.0	2.8	0.2	0.3	1.5	2.7	1.9	2.0	2.3	-1.2	-5.2
PGDPG	GDP deflator	0.5	0.1	-0.5	-0.6	0.5	0.0	-1.4	-1.7	-1.3	-1.5	-1.6	-1.0	-1.2	-1.0	-0.8	-0.8	-1.0
	Output gap	0.0	-0.7	-0.4	1.0	1.3	-1.8	-2.8	-1.0	-1.9	-2.5	-2.2	-0.6	0.4	1.7	3.5	2.3	-3.3
	Employment (thousands)	64500	64530	64570	64860	65570	65140	64620	64460	64120	63300	63160	63290	63560	63820	64120	63850	62820
	%oya		0.0	0.1	0.4	1.1	-0.7	-0.8	-0.2	-0.5	-1.3	-0.2	0.2	0.4	0.4	0.5	-0.4	-1.6
Risk-weighted assets	%oya		0.0	3.3	1.5	3.4	-0.4	-5.0	-4.5	-0.2	-7.7	-3.8	-0.9	3.2	2.1	2.1	5.5	-6.1
Bank assets		739	736	750	754	788	779	768	759	759	732	736	740	748	749	769	813	800
	%oya		-0.4	1.9	0.5	4.5	-1.2	-1.3	-1.2	0.0	-3.6	0.5	0.6	1.1	0.2	2.6	5.8	-1.6
	%GDP	152.8	150.7	151.5	149.2	152.7	154.3	154.2	150.8	152.5	148.9	150.0	148.5	149.0	147.7	149.1	161.0	168.8
Bank credit to private sector		562	566	574	578	580	569	544	543	530	507	487	481	495	500	497	512	500
	%oya		0.7	1.4	0.7	0.3	-1.7	-4.5	-0.2	-2.4	-4.3	-3.9	-1.1	2.9	0.9	-0.6	2.9	-2.3
	%GDP	116.2	115.8	115.9	114.4	112.3	112.8	109.2	107.8	106.4	103.1	99.3	96.6	98.7	98.5	96.4	101.3	105.4
Other credit		865	906	953	991	1072	1074	1085	1100	1063	1073	1042	1037	1010	974	943	844	844
	%oya		4.8	5.2	3.9	8.2	0.2	1.0	1.4	-3.4	0.9	-2.9	-0.5	-2.6	-3.5	-3.2	-10.4	0.0
	%GDP	178.8	185.4	192.5	196.0	207.8	212.8	217.8	218.5	213.5	218.3	212.4	208.0	201.2	191.9	183.0	167.2	178.1
Private sector credit	¥ trillion	1427	1472	1527	1569	1652	1643	1629	1643	1593	1580	1529	1518	1505	1474	1440	1356	1344
	%oya		3.2	3.7	2.7	5.3	-0.5	-0.9	0.9	-3.0	-0.8	-3.2	-0.7	-0.9	-2.1	-2.3	-5.8	-0.9
Nominal GDP		483.7475	488.7448	495.2133	505.4123	516.0215	504.675	498.081	503.340	497.891	491.494	490.542	498.456	501.883	507.473	515.352	505.066	474.049

Chapter 6

Impact on Emerging Economies

Introduction and Summary

- Large emerging economies should be an important part of discussions on global banking sector reform. After decades of turbulence, emerging market banking sectors were relatively stable in the latest episode. They may have lessons to teach.

- The total banking sector assets of a sample of large emerging economies was about $20.6 trillion at the end of 2009, which is more than 174% of the size of the US banking system, and about 145% of the combined GDP of these economies. This aggregate is dominated by China, where rapid growth in the banking system over the past couple of years has made it the single largest national banking system in the world.

- In assessing the direct impact of the unfolding regulatory reforms on emerging economies, we do not have the same quantitative framework used to assess the impact in large mature banking systems. Our assessment is thus more qualitative.

- Based on this assessment, it seems as though it is economic conditions in Emerging Europe that are most likely to be adversely affected by the current regulatory reform agenda. This broadly matches the message from the mature economies, where the largest impact falls on the European banking system.

- Most emerging market banking systems are relatively well capitalized and maintain ratios of regulatory capital to risk-weighted assets well above the current 8% minimum of the Basel II requirements.

- This is not to say that the new BIS rules will not affect most emerging market banking systems, however. One concern about the new capital regime is the possibility that they do not fully incorporate the features of emerging capital markets and that, as a result, significant amounts of what might now be countable as Tier 1 capital might not be treatable as such in the future. Another is how local supervisors will choose to react to an increase in the internationally agreed minima in setting the appropriate local buffers for actual capital ratios. Maintaining existing buffers and thus directly passing through the increase in the minima would probably be unduly harsh.

- Excluding minority interests from capital would also raise operating costs for many mature market banks with businesses in emerging economies. The minority interest issue is a particularly important one in the emerging economies, as many have benefitted from infusion of foreign equity from mature economies into local banking systems, which has brought with it new practices to improve local banking efficiency and competition. Current Basel III proposals would significantly increase the cost of maintaining, let alone increasing, such local emerging market presence for banks based in mature countries.

- Most emerging market banking systems will be challenged by the liquidity proposals. For one thing, most domestic long-term bank funding markets are relatively thin. In some cases (especially East Asia), the supply of eligible liquid assets is also limited.

- The direct negative economic effects on emerging economies from regulatory reform will be compounded by indirect effects, which will operate mainly through the transmission mechanism of cross-border capital flows. Unused trade finance facilities would become far more expensive under the leverage ratio proposals. These indirect effects could be most adverse for Emerging Europe, but economies in Latin America and Emerging Asia would probably also be adversely affected.

- A survey of our largest emerging market member banks broadly confirms these results. Bankers generally see the implications of reform as negative, with local lending conditions likely to tighten modestly, but international banking markets expected to tighten significantly, in the aftermath of regulatory reform.

Emerging Market Banking Systems should be a Focus

Banking systems in emerging economies should be an important part of the current discussions on global banking sector reform. The reforms of Basel I and Basel II were negotiated among, and largely shaped for, banks operating in mature economies. With the current round of reforms being designed to deliver a more stable global banking system for the next credit cycle, there are many reasons for emphasizing emerging markets.

The first is their existing scale. The total banking sector assets of a sample of 16 leading emerging economies was about $20.6 trillion at the end of 2009, which is more than 174% of the size of the US banking system, and about 145% of the combined GDP of these economies (Table 15). This aggregate is dominated by China, where rapid growth in banking system over past couple of years has made it the single largest national

banking system in the world[68] . While China dominates the EM aggregate (in banking as in most other areas), the absolute scale of assets in a number of other economies is notable, both absolutely and relative to GDP. For example, Brazilian bank assets have climbed to about $1.5 trillion, while Korea's and India's are about $1.4 trillion[69].

Table 15
Emerging Market Banking Sector Assets

	% of 2009 GDP	*$ billion*
Total EM (16)	145.1	20640.1
Emerging Asia		
China	251.7	12354.3
India	99.9	1354.7
Indonesia	44.8	266.1
Korea	170.6	1419.9
Emerging Europe		
Czech Republic	118.3	225.8
Hungary	139.4	197.5
Poland	92.6	428.9
Russia	74.4	963.0
Turkey	83.6	534.8
Africa/Middle East		
South Africa	139.8	401.4
Saudi Arabia	99.0	365.9
Latin America		
Argentina	33.3	103.6
Brazil	98.6	1551.4
Chile	119.6	193.5
Colombia	22.0	50.3
Mexico	26.1	229.0

Sources: IIF Estimates from various National sources

Second, 11 emerging markets are now formally part of the G20 process, and are thus members of the Basel Committee on Banking Supervision and the Financial Stability Board[70]. As such, they have active seats at the table and are able to influence directly negotiations on reform proposals, unlike Basel I and Basel II.

Third, while banking systems in some emerging economies had been subject to multiple, and often violent, periods of crisis and turbulence over recent decades, there was a much reduced incidence of EM banking sector turmoil in the latest episode. Bankers,

[68] Note that this does not include the "offshore" assets of banks based in Hong Kong.

[69] For some context, that puts Brazil slightly behind both Belgium and Luxembourg, which vie to be the sixth largest banking system (by assets) in the Euro Area (see Table 10, page 81).

[70] The G20 consists of 19 countries and the European Union (which, in turn, is a grouping including many economies from Emerging Europe). The 11 emerging market G20 members are: Argentina, Brazil, Mexico, China, India, Indonesia, Korea, Russia, Turkey, Saudi Arabia and South Africa.

regulators and supervisors in emerging economies may thus have lessons to teach their counterparts in the mature economies. Indeed, this relative resilience of EM banking systems was an important global stabilizer in the 2008-09 global recession. Credit growth in emerging economies slowed but did not collapse (Chart 42). The slowing was most pronounced in Emerging Europe, which was the region most affected in 2007-09, and Latin America (Chart 43). By contrast, credit growth accelerated in Emerging Asia in 2009, largely thanks to China.

Chart 42

Emerging Economies: Bank Lending to Private Sector
percent change over a year ago, 20 emerging economies

Sources: IIF Estimates from National Monetary Surveys, Bloomberg, Datastream

Fourth, and perhaps most importantly, it seems clear that whatever part emerging market banking systems may play in the global economy today, that role will become increasingly important in the future, and probably quite quickly. One reflection of this is the equity market capitalization of leading emerging banks: three of the five largest banks in the world by market capitalization (as at the end of 2009) were Chinese (while a fourth—HSBC—has extensive links to China); and 7 of the top 20 banks (by market capitalization) were in emerging market economies. Emerging market banking systems are thus important not only from a national systemic perspective, but now also globally.

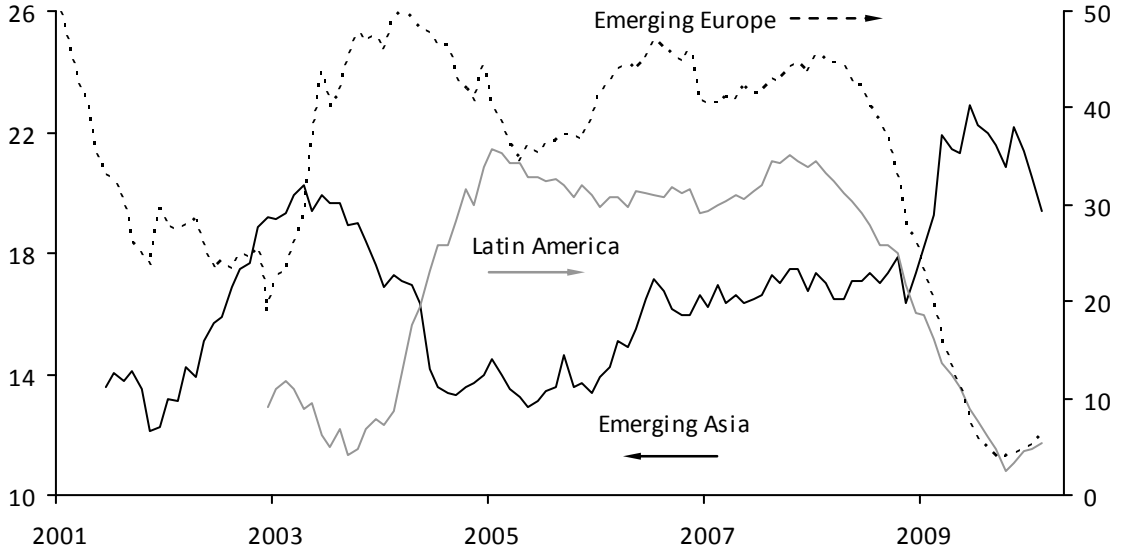
The scope for banks in emerging economies to grow is largely domestic. Emerging economies have enjoyed relatively rapid nominal GDP growth in recent years, and this seems likely to persist, even as nominal income growth in mature economies is expected to remain quite anemic. While asset growth in many systems has been rapid even relative to high nominal GDP growth, there is still plenty of room for many banking systems to grow as banking services penetrate the economy more broadly. It is this potential for growth that has attracted a lot of foreign investment into local emerging

market banking systems, especially in Latin America and, more recently, Emerging Europe.

For most countries, the relatively small size of their banking sector to the economy is legacy of past instability; for some, it was a reflection of suppression and controls, although these constraints have become a lot less binding in recent years. Unlike mature economies, where there is scope for other forms of debt intermediation to supplant traditional commercial banking activity, many emerging economies are at the stage of financial development where the share of banks in financial intermediation is rising, in part because banks are replacing more traditional (and often very high cost) sources of informal credit.

Chart 43

Emerging Economies: Bank Lending to Private Sector
percent change over a year ago (both scales)



Source: IIF Estimates from National Monetary Surveys, Bloomberg, Datastream

This stage of financial development presents bankers and regulators in emerging economies with a special challenge: they need to permit relatively rapid rates of credit growth to promote economic and social development (including support for both small and medium-sized enterprises, as well as large infrastructure needs), while maintaining sufficiently robust regulatory regimes to ensure financial soundness and stability.

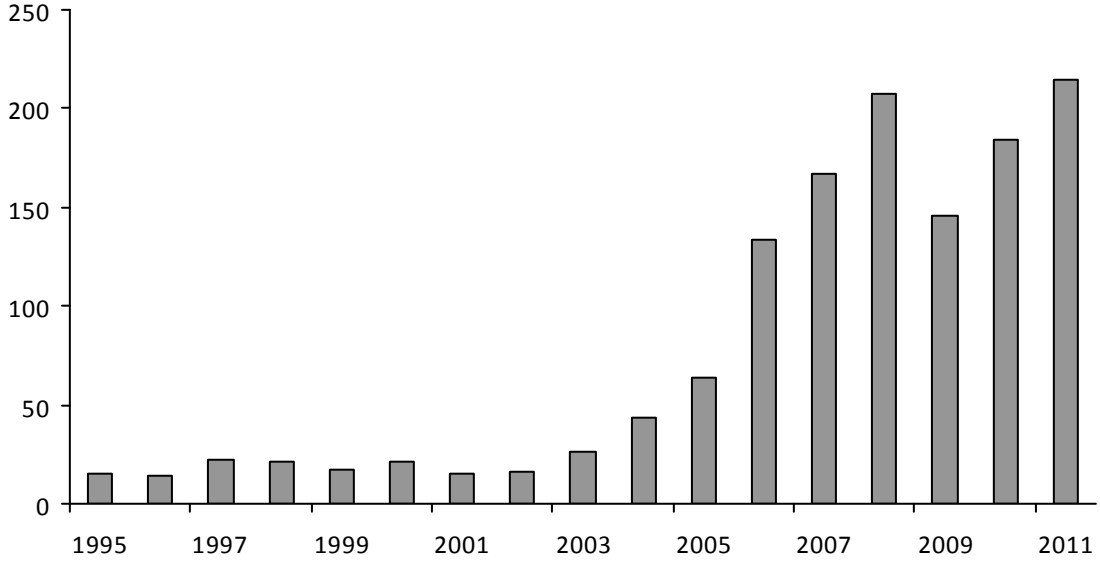
A final way in which the global significance of emerging market banks is likely to rise in coming years is that they are almost certain to become more globally active, increasing cross-border activity. This is not to say that Chinese banks, for example, are apt to increase suddenly their appetite for foreign assets (although this did occur in the case of Japan in the 1980s). Commercial banks tend to follow their non-financial customers abroad, however, and the rising world trade share of producers based in emerging

economies will naturally promote more extensive international links. Moreover, one of the most interesting developments of recent years has been the tendency for firms located in emerging economies to undertake foreign direct investment in other countries (both mature and emerging), which is likely to promote more internationalization of emerging market banking systems (Chart 44).

Chart 44

Outflows of FDI from Emerging Economies

$ billion



Source: IIF Estimates

Applicability of Basel Reforms to Emerging Economies

In assessing the impact of likely global regulatory reforms on emerging market banking systems and their economies, one issue is how relevant these globally agreed standards are to the local banking systems across the emerging world.

As noted above, large emerging economies are party to the discussions on the revised rules on capital and liquidity now underway. More countries than just this group of 11 are likely to adopt these agreements, however. Current compliance rates with the Basel Committee Core Principles on Banking Supervision are generally around two-thirds across the emerging world (Chart 45). Compliance with the Core Principles is a much broader requirement than just meeting internationally agreed minimum requirements on capital. Indeed, capital adequacy is one of 25 core principles[71]. By region, current compliance rates with Basel Core Principles are highest in Emerging Europe and the

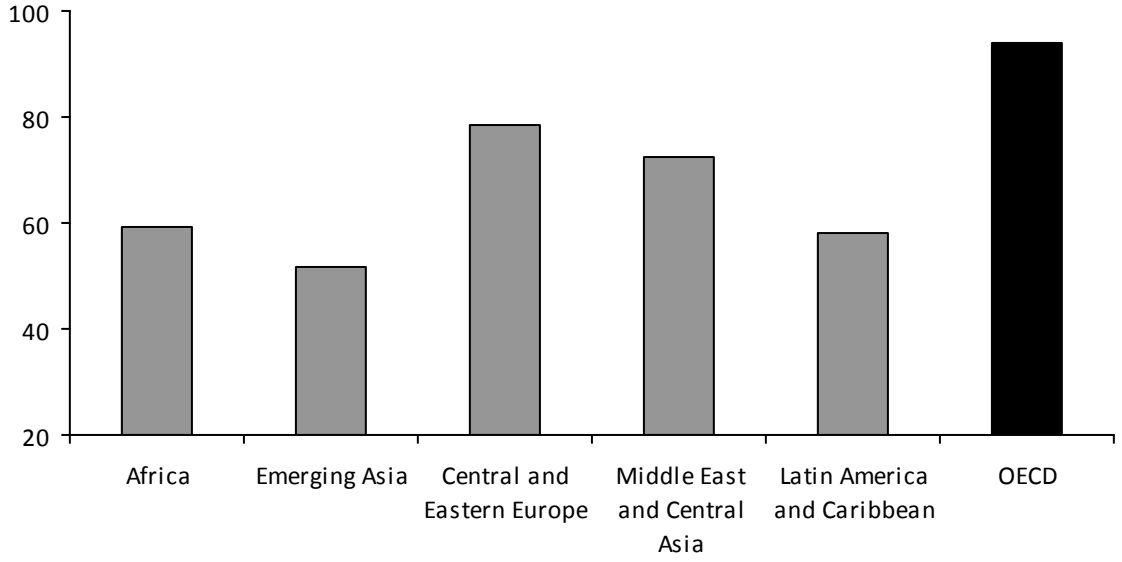
[71] See BIS (2006b)

Middle East and lowest in Emerging Asia. Looking ahead, it seems reasonable to expect that regulators and supervisors in major banking systems in the emerging world will strive to meet and stay ahead of regulations that were initially established for their counterparts in the mature world.

Chart 45

Compliance with Basel Core Principles

percent of countries either compliant or largely compliant



Source: Rennhack, R. et al (2009)

A Qualitative Impact Assessment of the Reform Proposals

In assessing the potential direct impact of the unfolding reforms on emerging economies, it should be emphasized that we do not have the same quantitative framework used to assess the impact in large mature banking systems (see Chapters 3-6). Our assessment is thus more qualitative. In what follows below, we assess a series of effects. In an effort to combine these effects and assess their relative importance, we have developed a simple scoring matrix (Table 16). In this matrix, we "score" various effects according to whether they are likely to be insignificant in (economic) impact (0); negative in impact (- ; -- implies significantly negative); or positive in impact (+). Five of these effects are what might be termed "direct" effects (i.e., the economic effect resulting from the application of the regulatory change to the system in question); one summarizes "indirect" effects (i.e., economic changes resulting from the application of regulatory change elsewhere).

Table 16
Qualitative Assessment of Potential Impact of Regulatory Reform on Growth Outlook

	Direct					Indirect	Overall Assessment
	Capital			Liquidity	Other Factors	Capital Flows	
	Higher Core Ratios	Buffers	Redefinition Effects				
Emerging Asia	-	0	0	-	-	0	0
Latin America	0	-	-	-	-	0	-
Africa/Middle East	0	0	0	-	0	0	0
Emerging Europe	0	-	- -	-	0	- -	- -

Source: IIF Estimates

The right hand column is an overall assessment based on the previous six columns. Based on this assessment, it seems as though it is economic conditions in Emerging Europe that are most likely to be adversely affected by the current regulatory reform agenda. This broadly matches the message from the mature economies, where the relatively largest impact falls on the European banking system.

Direct Effects

Capital

Most emerging market banking systems are relatively well capitalized and maintain ratios of regulatory capital to risk-weighted assets well above the current 8% minimum of the Basel II requirements (Table 17). Capital ratios are typically higher in countries that have had a (relatively) recent history of banking sector and broader economic instability: Argentina, Brazil, Indonesia, Mexico, Russia and Turkey.

- An increase in the minimum requirement of two percentage points, to 10% of risk-weighted assets would not appear to be a significant burden on EM banking systems that are currently quite well capitalized, at least at face value. Higher core capital ratios would probably require banks in Emerging Asia to step up their already-significant capital raising activities somewhat. Depending on how global capital markets reacted, this could act as a modest tightening in regional financial conditions[72].

[72] Increased capital demands by Emerging Asian banks – especially Chinese banks – could have negative spillover effects elsewhere. Rates of return on emerging market bank equity are quite attractive, and global investors might well prefer to hold such "growth" stocks in the future, relative to equities issued by banks in mature economies. What amounts to crowding out in a global market place for bank equity could thus act as an additional drag on banks operating in low (nominal) growth mature economies, especially Japan and parts of the Euro Area. These crowding out worries are symmetric: emerging

- What is more of an issue for most emerging market banking systems is how local supervisors choose to react to an increase in the internationally agreed minimum in setting the appropriate local buffer of actual capital ratios over the minimum. It would probably be an unduly harsh reaction to maintain existing buffers and thus directly pass through the increase in the minima, although we believe that supervisors in Latin America and Emerging Europe are somewhat apt to do this. The argument for maintaining lower buffers would simply be that emerging market banking systems had adjusted to a riskier world earlier than their mature market counterparts, mainly because of their own traumatic experiences of the 1990s[73]. Putting on an extra layer of capital to compensate for similar mistakes made more recently in mature economies would imply a double adjustment[74].

Table 17
Emerging Market Banking Sector - Capital Ratios and Returns
percent, latest data (generally 2009)

	Capital Ratios		Return on	
	Regulatory Capital to Risk-Weighted Assets	Capital to Assets	Assets	Equity
Emerging Asia				
China	12.0	5.4	1.0	17.1
India	13.0	6.6	1.0	12.5
Indonesia	16.8	9.4	2.7	17.4
Korea	12.3	9.5	0.5	7.1
Emerging Europe				
Czech Republic	13.7	6.2	1.3	23.4
Hungary	12.3	8.1	1.1	15.3
Poland	11.7	7.9	1.1	15.6
Russia	18.5	13.6	0.5	3.6
Turkey	19.2	12.1	3.0	25.1
Africa/Middle East				
South Africa	13.5	7.9	1.0	17.2
Latin America				
Argentina	17.6	13.1	1.9	15.6
Brazil	18.5	9.2	1.1	11.6
Chile	13.6	7.4	1.1	14.7
Colombia	14.8	12.5	5.5	44.4
Mexico	15.2	9.1	1.2	12.7

Source: IMF Global Financial Stability Report, April 2010

economies dependent on bank credit for growth could find their prospects crimped by heavy capital demands from mature countries.

[73] Of course, the requirement to run higher EM capital ratios is not just that imposed by regulators or enlightened bank managements, but also that by local equity markets.

[74] The argument for maintaining buffers and passing higher regulatory minima through would be that the world has become a riskier place and prudence requires an acknowledgment of this, even in systems that had proven they were quite resilient in recent years.

- Probably the biggest concern about the new capital regime is the impact of new requirements relating to the composition of capital, and the possibility that significant amounts of what might now be countable as Tier 1 capital might not be treatable as such in the future. Most importantly, global proposals on exclusion of minority interests in financial institutions from the common equity component of Tier 1 capital would have serious repercussions on the way global institutions operate in emerging economies. Indeed, either partnering with or as a minority stakeholder in emerging economies is often a way for foreign banks to *reduce* risks associated with local expansion in emerging economies. The exclusion of minority interests could have a particularly significant effect on banking systems in Emerging Europe, where foreign ownership of local banks has become very significant in recent years. The minority interest exclusion will make it more costly for foreign owners to maintain and expand their operations in Emerging Europe, and will thus act as an unambiguous drag on activity. It should also be recognized that there are special characteristics of local capital market instruments in a number of emerging market jurisdictions—especially Latin America—which while diverse in form, comply with the general substantive principles of loss-absorbency endorsed by the *BCBS* proposals (for example, preferred stock with fundamentally similar loss absorbency characteristics as common stock).

- The potential application of a *leverage ratio* to off-balance sheet assets such as letters of credit, credit card lines, contingent lines of credit for small and medium-sized enterprises and trade finance instruments could have a penalizing effect.

Liquidity

Many emerging market banking systems have maintained relatively high levels of liquidity (either holdings at the central bank or of government debt) in recent years, so meeting some of new liquidity-related requirements may not be that challenging. This relatively ample stock of bank liquidity is, in part, a reflection of monetary policy tools in emerging economies, which are often based around the maintenance of required reserve requirements[75]. It is also the result of foreign exchange intervention policies, where massive, regular intervention cannot be, or is not, fully sterilized.

Most emerging market banking systems will be challenged to meet net stable funding rule requirements, however, because long-term markets in bank paper are very thin. Enforcing the overall package of liquidity requirements could thus lead to a significant increase in banks' overall funding costs.

[75] Reserve requirements have long since been eschewed as a monetary policy instrument in mature economies.

Other Considerations

Most emerging market banking systems are dominated by several large, systemically important firms. As noted, three of the world's five largest banks (by market capitalization) are Chinese banks. Global proposals to add to special capital charges on systemically-relevant institutions; to impose a bank levy (tax) on large firms; or, at the limit, to enforce a break up of large firms could have significantly negative implications for banks and economies, especially in Emerging Asia and Latin America.

Indirect Effects

Capital Flows

The direct negative economic effects on emerging economies from regulatory reform will be compounded by indirect effects, which will operate mainly through the transmission mechanism of cross-border capital flows.

Lending to emerging market borrowers from banks in mature market economies will be adversely affected by higher capital charges. Under BIS rules, loans and other exposures to OECD members get more favorable risk-weighting than those outside OECD. Higher capital charges will thus further tilt this bias, and lead to reduced lending to emerging market economies[76].

Bank flows to emerging economies will also be adversely affected by the proposed treatment of off balance sheet items, such as trade finance instruments, which will increase the cost of trade finance. The collapse in world trade in late 2008 as a result of the evaporation of trade finance facilities was a strong reminder of the importance of bank credit in the trade finance mechanism, much of which is provided on a contingent basis. Moreover, large international banks – which will be significantly disadvantaged in this area – tend to play a key role in this market, including the provision of trade finance facilities to many of the poorest countries.

Cross-border bank lending to emerging market economies tends to move in cycles, with the latest (and greatest) surge to date peaking in 2007 (Chart 46). The collapse in cross-border lending to emerging economies was one key transmission mechanism through which the extreme turmoil in mature markets after September 2008 affected emerging economies, especially via the dislocation of trade finance. Stopping the decline in flows was more important than returning them to strong growth: Emerging economies have been able to lead the global recovery, even though there has yet to be an appreciable quickening in the pace of bank lending.

[76] There is an additional bias that will be reinforced, which is that BIS-related capital charges are also based on ratings, including sovereign ratings; recent IIF work has determined that sovereign ratings for emerging economies are systematically lower (all other things equal) than for mature market economies. See IIF (2010).

Chart 46

Bank Lending to Emerging Market Economies

IIF sample of 30 leading emerging economies

Source: IIF Staff Estimates

Each of the three last bank lending waves to emerging economies had a regional concentration (Chart 47). Moreover, each ended badly. In the early 1980s, the focus was on lending to Latin America, with excessive lending culminating in the 1982-83 debt crisis. In the mid 1990s, the focus was on Emerging Asia, with excess there culminating in the 1997-98 East Asia crisis. In the mid 2000s, the focus was on Emerging Europe, and the sudden reversal of these flows culminated in a sharp downturn in the region as part of the 2008-09 global recession[77].

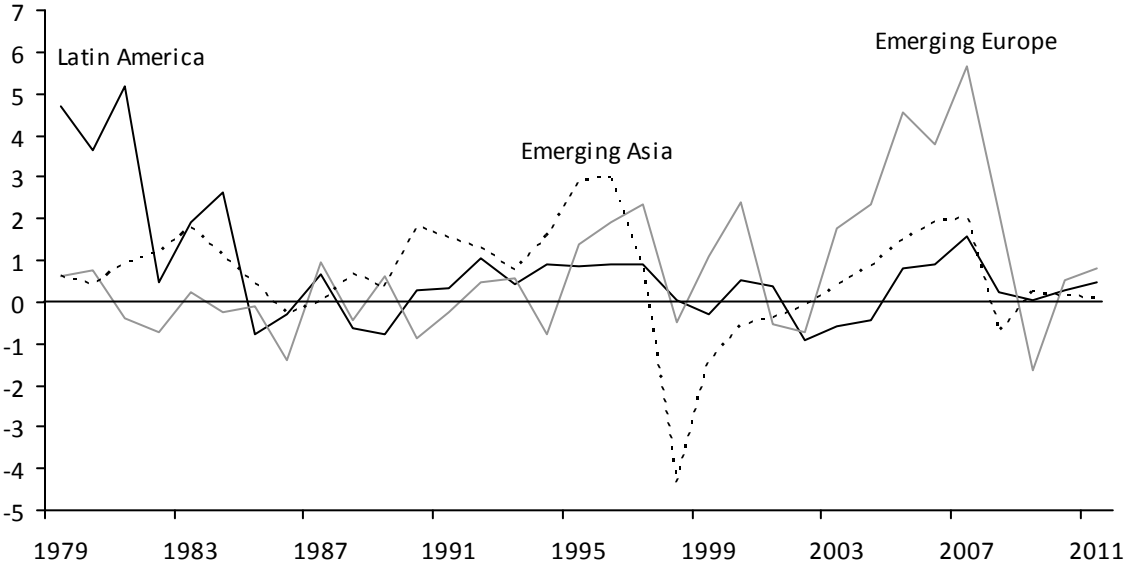
As the region most recently affected by the boom and bust in cross-border bank lending, it is Emerging Europe that stands to suffer the most from a reduction in the propensity of foreign banks to hold cross-border claims on emerging market economies. Note that this effect will compound the negative resulting from a greater leeriness on the part of banks domiciled in the Euro Area to expand their local market activities in Emerging European countries because of the higher cost of capital resulting from the exclusion of minority interests from Tier 1 capital.

[77] The Emerging Europe credit boom should probably be seen as part of a more general reallocation of capital from surplus to debtor parts of Europe, fueled by convergence euphoria resulting from the introduction of the euro, and the growing view (at least through 2008) that its extension to most countries in Emerging Europe was simply a matter of time. The Emerging European credit boom and bust was the leading edge of a process that was evident within the Euro Area and recent market tension has now focused on how some countries within the Euro Area might deal with the down leg of this cycle.

Chart 47

Bank Lending to Emerging Market Economies, by Region

as percent of regional GDP



Source: IIF Estimates

It is widely accepted that proposed banking reform measures will have the effect of raising the cost of bank intermediation in mature economies and, all other things equal, the cost of credit to the private sector. Policy makers in mature economies have emphasized that they would be able to offset some of the restrictive impact of such an effect by either trimming official interest rates below where they would otherwise be. If that is not possible because if rates already being close to zero, then it would be possible to run a more expansionary monetary policy through quantitative easing. This monetary strategy has implications for capital flows emerging economies.

For one thing, a more expansionary monetary policy in mature economies (especially more quantitative easing) could lead to higher real commodity prices. This would tend to promote the flow of capital to commodity producing regions and countries (both speculative and fundamental). Depending on the size of these flows, this effect could even strengthen growth in these economies (Middle East, Africa and Latin America).

For another, wider interest differentials are apt to promote carry-trade related debt flows, and lead to expectations of currency weakness in mature economies versus emerging market currencies. Capital flows driven by expectations of long run currency appreciation seem most likely to be driven towards Emerging Asia.

Whether driven by higher commodity prices, wider interest differentials, or expectations of currency appreciation, such stronger capital flows than would otherwise prevail would then tend to boost local liquidity conditions, thus helping to offset the negatives resulting from other measures discussed above. As a result, we assigned a

zero to the "indirect" effect associated with global capital flows for Emerging Asia, Latin America and Middle East and Africa in our scoring matrix (Table 16). The effect for Emerging Europe is significantly negative, however.

IIF Survey of Leading Emerging Market Banks

Our estimates of the impact of regulatory reform on emerging economies are less precise than those for mature economies. Nonetheless, it seems reasonable to conclude that the impact will be somewhat restrictive, although not significantly so, with the possible exception of Emerging Europe.

As a cross-check to this intuitive result, and in order to better assess the potential impact of regulatory reform on banks in emerging economies, we asked a sample of our leading emerging market member banks some basic questions on the topic[78]. The answers reflect the best judgments of commercial bank lending officers and other key officials. On balance, they underline the message that the likely impact of proposed regulatory reform on emerging market banks will be modestly negative, and with the greatest concerns relating to conditions in international markets. In general, the results get more negative the further away from the respondents' own institution that the questions move.

The three questions that we asked were as follows:

1) *How do you believe your bank will be affected by the reforms especially on capital and liquidity being proposed by the Basel Committee on Banking Supervision?*

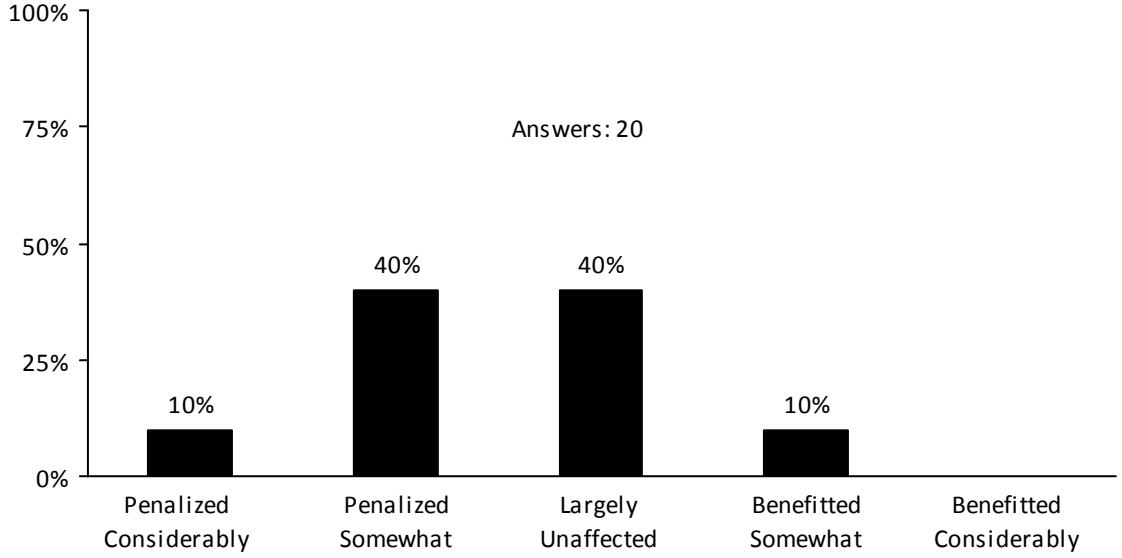
The balance of respondents expect a somewhat adverse effect on their bank, although it is worth noting that two respondents expect their bank to be benefitted somewhat (Chart 48). Half of respondents view their banks as either largely unaffected or slightly help by the reforms, which underlines the likely modest nature of the magnitude of reforms. That said, two respondents see their banks as penalized considerably by the reforms.

[78] These questions were special questions in our latest (April) quarterly survey of emerging market bank lending conditions, which is conducted with the 33 leading emerging market banks that are members of the IIF's Emerging Markets Advisory Council (EMAC). The response rate to these questions in the survey was 21 banks out of the EMAC total of 33 (i.e., 63.6%). The regional samples were not large enough to allow us to make meaningful regional comparisons.

Chart 48

EMAC Bank Lending Survey

percent of respondents



Source: IIF EMAC Bank Lending Survey

2) How do you expect the proposed reforms to affect bank lending conditions in your local economy in the years ahead, once fully enacted?

The majority of respondents expect lending conditions in the local economy to tighten as a result of regulatory change, although it is once again worth noting that two respondents expect some modest easing effect (Chart 49). More expect conditions to tighten considerably. Half of respondents take the view that there will be a modest tightening in local lending conditions.

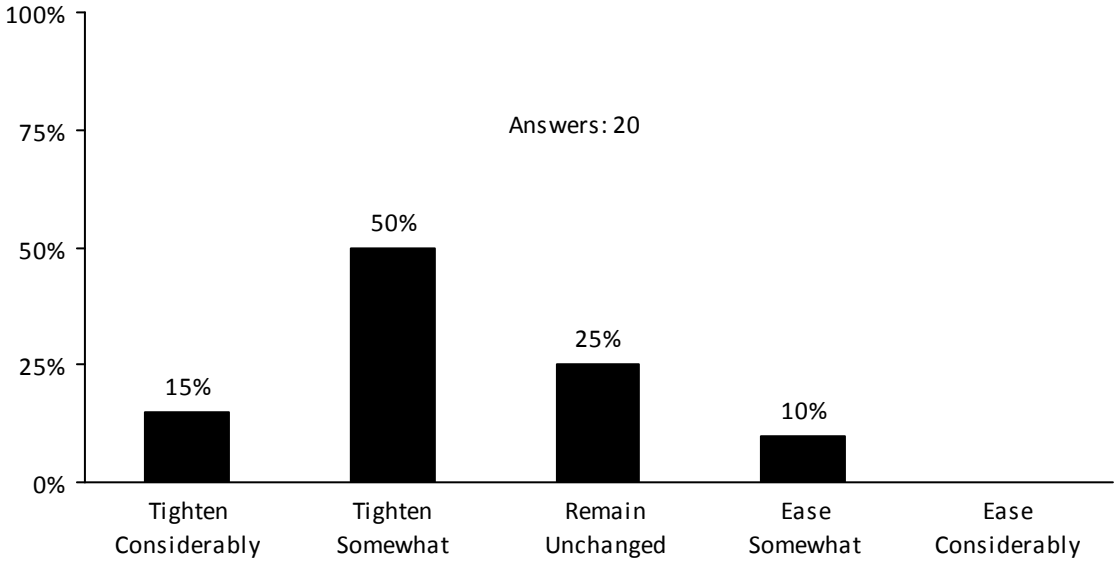
3) How do you expect the proposed reforms to affect bank lending conditions in international markets in the years ahead, once fully enacted?

The most decisive message from our survey is that global bank reform is expected to lead to a tightening in lending conditions in international markets (Chart 50). This supports the view that the main impact of bank reform measures will fall on banks in mature economies, and that part of their adjustment process will be to rein in foreign lending. While this has global implications, such restraint would most hurt the region more heavily dependent on external borrowing through the banking system. In the current cycle, this has been Emerging Europe.

Chart 49

EMAC Bank Lending Survey

percent of respondents

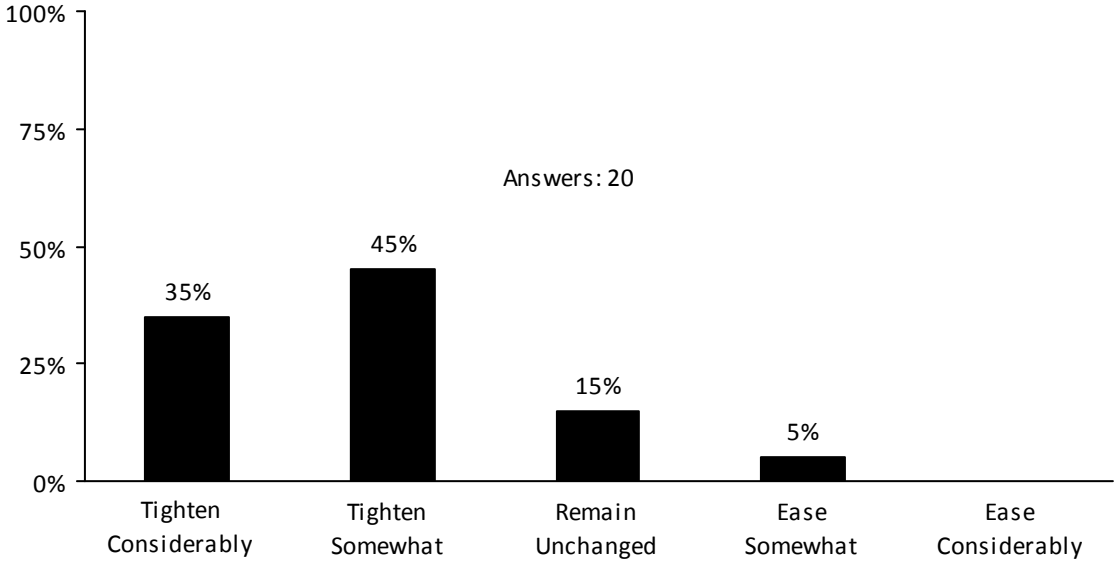


Source: IIF EMAC Bank Lending Survey

Chart 50

EMAC Bank Lending Survey

percent of respondents



Source: IIF EMAC Bank Lending Survey

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