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Implementation of Basel III

Economic Impacts and Policy Challenges in the United States, Japan, and the European Union

Minoru Aosaki

FREEMAN SPOGLI INSTITUTE FOR INTERNATIONAL STUDIES

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Implementation of Basel III: Economic Impacts and Policy Challenges in the United States, Japan, and the European Union and other APARC working papers may be downloaded from the Shorenstein APARC website.

Walter H. Shorenstein Asia-Pacific Research Center Books, 2013.

Shorenstein APARC Working Papers
February 2013

13-digit ISBN 978-1-931368-34-6

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Abstract

This paper discusses economic impacts and policy challenges related to implementing Basel III, the new international standard of banking regulation, in the United States, Japan, and the European Union. The G20 leaders endorsed Basel III in late 2010 and currently national regulators are translating it into their national laws and regulations. A key issue is whether regulators can persuade their national legislatures and industries about the merits of Basel III. This paper compares and analyzes the economic cost-benefits of Basel III under the different regulatory environments of these countries, including the size of the banking sector in financial intermediation, the size of bank assets relative to GDP, additional capital that banks need to raise, the methods banks use to raise capital ratio, and cross-border bank activities.

Based on this analysis, the paper finds that implementing Basel III will have to be complemented by additional measures to stabilize the financial market, let alone the global economy. The paper presents policy recommendations to ensure the benefits and mitigate the costs of implementing Basel III and discusses challenges that regulators may face in the future in each of the three regions considered:

- U.S. regulators should enhance regulatory frameworks in the non-banking financial sector to ensure the benefits of regulatory reform. The sector accounts for three-quarters of financial intermediation and is still increasing in size. If stringent regulation is imposed only on banks, many risk activities may shift from the banking sector to the non-banking financial sector. The challenges will likely be political pressures from industry and conflicts of interests among financial regulators.
- Japanese regulators should consider measures to safeguard against lending reduction. With prevailing low profitability and low capital ratios, it may take more time for Japanese banks to meet the new capital requirements. Possible countermeasures include encouraging banks to operate globally, restraining them from excessive distributions, and encouraging them to reduce non-loan assets, such as stocks. The challenges will likely be a subsequent slower economic recovery and the associated political concerns.

- EU regulators should introduce stronger regulations since the banking sector plays a larger role in their economy. This can be achieved, for example, through setting higher minimum capital requirements and strengthening the role of supervision. Also, their regulatory emphasis should be placed on regional cohesion and resiliency since the costs of the new regulations will be shared among EU member countries. The challenges will likely be the impact of the surging sovereign credit risks on the banking system and different economic conditions within the region.

Disclaimer

The views expressed in this paper are those of the author and not those of the Ministry of Finance, the Financial Services Agency, or the Shorenstein Asia-Pacific Research Center.

About the Author

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Acknowledgements

The author wishes to extend his sincerest thanks to Shorenstein APARC and in particular to Ambassador Michael Armacost for his guidance and encouragement. The author also benefited greatly from suggestions and comments by Taggart Murphy, Akio Mikuni, Masahiko Aoki, Toru Nakamura, Annelise Riles, Joseph A. Grundfest, Kenneth E. Scott, Michael Klausner, Peter DeMarzo, Anat R. Admati, Ronald I. McKinnon, Phillip Lipscy, Douglas J. Elliott, and officials of the Federal Reserve Bank and Japan Financial Services Agency.

Introduction

Inadequate bank regulation has been criticized as one of the main causes of the financial crisis.[1] Many banks built excessive leverage without sufficient capital and liquidity. They were therefore unable to absorb their large trading and credit losses that had occurred since 2007,[2] and many banks failed.[3] The weaknesses in the banking sector were rapidly transmitted to the rest of the financial system and the real economy, which resulted in a massive contraction of liquidity and credit availability. Ultimately the public sector had to step in with unprecedented injections of liquidity, capital support, and guarantees for financial claims, exposing taxpayers to large losses.

Based on lessons learned from the financial crisis, the Basel Committee on Banking Supervision (Basel Committee),[4] an international group of bank regulators, developed a new set of international standards on banking regulation, referred to as Basel III.[5] This comprehensive regulatory reform package requires banks to retain significantly higher levels of capital and liquidity to strengthen the resilience of the global banking system. The leaders of the Group of Twenty (G20), which includes the United States, Japan, and major EU countries,[6] endorsed Basel III and committed to fully implement

1 For example, the leaders' declaration at the G20 Seoul Summit (2010) states, "The global financial system came to a sudden halt in 2008 as a result of reckless and irresponsible risk taking by banks and other financial institutions, combined with major failures of regulation and supervision." See also Financial Crisis Inquiry Commission, *Financial Crisis Inquiry Report*.

2 Banks recorded $2.2 trillion of write-downs and provisions between 2007 and 2010. International Monetary Fund, *Global Financial Stability Report* (2009).

3 In the United States, 361 banks have failed since 2008 (as of April 2011). The U.S. Federal Deposit Insurance Corporation (FDIC) publishes a historical record of failed banks (http://www.fdic.gov/bank/individual/failed/banklist.html).

4 The Basel Committee on Banking Supervision is a forum for regular cooperation on banking supervisory matters. It consists of senior representatives of bank supervisory authorities and central banks from Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

5 Released in 2010, these standards were published by the Basel Committee in *Basel III: A Global Regulatory Framework for more Resilient Banks and Banking Systems* and *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*.

6 The EU countries with G20 membership are France, Germany, Italy, and the UK. This paper focuses on these four countries within the EU.

it in November 2010.[7] They agreed to translate Basel III into their national laws and regulations, start implementation in 2013, and fully phase it in by 2019.[8]

A key issue for national regulators is how to translate the international standards into the national regime in their own economic and regulatory environments. The transition involves a process of establishing domestic legitimacy with national legislatures and industries, and thus it is important for regulators to understand the impact of Basel III on their country and, if necessary, to take additional measures to complement Basel III. In other words, national regulators have to shape the regulatory reform in a way that will maximize *positive* impact of the regulation to prevent future financial crises and at the same time limit *negative* impact of the regulation that may lower economic growth.

To consider the issue, I examine key economic and regulatory environments of the largest banking regions of the world, the United States, Japan, and the EU, and discuss how these environments will influence the economic impact of Basel III. Based on that analysis, I provide policy recommendations to maximize the net benefits of the regulation. While Basel III is a comprehensive regulatory architecture, my focus is on the economic impact of new capital regulation, since in the past it has been the most-discussed area. Where data are publicly available, a quantitative analysis will be presented. It should be noted that my main objective is not to discuss the magnitude of impact;[9] instead, it is to discuss the variation of impacts in each of the three regions, which will be shown by an international comparison of regulatory and economic environments.

This paper begins with a brief overview of international banking regulations and regulatory reform under Basel III. Next, I review the literature addressing the regulatory impact on the economy in order to derive the policy implications. Following that, I examine how regulatory environments will influence economic costs and benefits by the implementation of Basel III. The paper concludes with a summary discussion of policy recommendations and regulatory challenges facing the United States, Japan, and the EU.

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7 The G20 Seoul Summit Leaders' Declaration, November 11–12, 2010, ¶ 29.

8 Ibid.

9 The quantitative analysis of Basel III requires an extensive collection of data and numerous assumptions for banks' responses to the regulatory reform and future economic conditions. It does not seem to be sufficiently realistic to make international comparisons at the time this paper is being written.

Bank Regulation and International Standards

Prior to the recent financial crisis, the Basel Committee introduced two international standards for banking regulation. The first standard, which is commonly referred to as the Basel Accord or Basel I, was issued in 1988 as an agreement to foster international convergence of capital measurement and capital standards.[10] The second standard, known as Basel II, was issued in 2004 as a revision of the first standard in order to accommodate diversified global banking practices.[11] These standards sought to strengthen the soundness and stability of the international banking system and prevent country-specific capital regulations from creating competitive inequality among banks in various jurisdictions.[12]

These standards are aimed to control risk-taking activities by requiring a bank to retain more than a certain level of capital against the amount of risks[13] held by the bank.[14] While the bank is a risk taker in business,[15] the capital functions as a cushion against possible losses brought on by borrowers' defaults, asset price volatility, or unexpected claims.[16] The capital is analogous to insurance, protecting the bank against exogenous shocks and the risks of financial intermediation.[17] Higher capital means an increased insurance coverage, helping to keep the "policyholder" from bankruptcy caused by unexpected losses. However, banks tend to have an incentive to

10 Basel Committee, *International Convergence of Capital Measurement and Capital Standards* (1988).

11 Basel Committee, *International Convergence of Capital Measurement and Capital Standards: a Revised Framework* (2004).

12 Basel Committee, *International Convergence* (1988), ¶ 3 and *International Convergence* (2004), ¶ 4.

13 Basel II requires banks to calculate their risk amount based on credit risk, market risk, and operational risk.

14 For lucid explanations of the role of bank capital and a brief review of the related policy issues, see Elliot, "Primer on Bank Capital."

15 For example, banks lend money to corporations and consumers to receive interest payments. This incurs credit risks in that borrowers may fail to repay their loans.

16 For example, if a bank has $100 of outstanding loans, funded by $92 of deposits and $8 of common capital, then the capital of $8 is available to protect the depositors against losses. If $7 of the loans is not repaid, there would still be more than enough money to pay back the depositors.

17 Singer, *Regulating Capital*, 16.

hold less capital because doing so they can reduce their insurance premium payment, generating higher returns to the bank's equity holders. In particular, so-called too-big-to-fail banks have such an incentive, since they can expect government bailouts in times of crisis. Thus, appropriate regulations are required.

Nowadays, bank regulators in many countries establish their national rules in line with the Basel standards.[18] While Basel I was initially implemented only by G10 countries, it quickly became acknowledged as a fundamental measure of a bank's solvency.[19] This is partly because international financial organizations, such as the International Monetary Fund (IMF) and the World Bank, use the Basel standards as a benchmark of good banking regulation, and they regularly conduct surveillances of their member countries to evaluate their compliance level with the Basel standard.[20] The compliance is particularly important for countries who seek to use the IMF's emergency financial assistance programs, as compliance is sometimes required as one of the program's conditions.[21] In this manner, Basel I has been adopted by more than a hundred countries, including major financial centers. Basel II has also been adopted by a number of countries, though adoption timelines and methodologies vary widely.[22]

Financial Crisis and Regulatory Reform

The recent financial crisis, however, revealed that current banking regulations were insufficient to prevent banks from engaging in excessive risk-taking activities. The banking sectors in many countries had built up large

18 Technically, international regulators often use the term "jurisdiction" in place of "country" in light of the fact that some countries have multiple regulatory regions (e.g., the Hong Kong Monetary Authority is responsible for monetary and banking stability within Hong Kong, an administrative region of China). This paper uses "country" as a general term.

19 Note that countries have no legal obligation to implement the Basel standard. The standards are sometimes called soft-law. See Alexander, "International Economic Law."

20 The IMF exercises surveillance through a variety of programs, including the Article IV Financial Sector Assessments, Financial System Stability Assessments, and Reports on the Observance of Standards and Codes. See Alexander, "International Economic Law."

21 For example, in 2002, when the Turkish government had an SDR 12.8 billion standby arrangement with the IMF, the government committed itself to recapitalize its troubled banks in accordance with the Basel standard and to adhere to other principles of the Core Principles in its Letter of Intent of June 19, 2002.

22 According to a survey conducted by the Financial Stability Institute (FSI), 112 regulators indicated that they will implement Basel II in some form or another by 2015. See Financial Stability Institute, "2010 FSI Survey."

on- and off-balance sheet leverage, and so the banking system was not able to absorb the resulting systemic trading and credit losses. At the peak of the crisis, the market lost confidence in the solvency and liquidity of many banking institutions. Ultimately the public sector had to step in with unprecedented injections of liquidity, capital support, and guarantees for financial claims, exposing taxpayers to large losses.

- *Level and quality of capital*—The crisis demonstrated that the regulatory capital level was not enough to cover the credit losses and write-downs of some banks. Also, it revealed that the inconsistency in the definition of capital across countries impeded the market to assess the quality of capital between banks.
- *Risk coverage of capital*—The trading book and complex securitization exposures were major sources of losses for many banks, but the current capital framework did not capture these risks sufficiently.
- *Capital conservation*—At the onset of the financial crisis, a number of banks continued to make large distributions in the form of dividends, share buybacks, and generous compensation payments, even though their individual financial condition and the outlook for the sector were deteriorating.
- *Procyclical amplification of financial shocks*—Losses incurred in the banking sector during a downturn preceded by a period of excess credit growth can be extremely large. Such losses can destabilize the banking sector, which can exacerbate a downturn in the real economy. This in turn can further destabilize the banking sector.
- *Liquidity*—Prior to the crisis, asset markets were buoyant, and funding was readily available at low cost. However, the rapid reversal in market conditions illustrated how quickly liquidity could evaporate and that illiquidity could last for an extended period of time. Many banks experienced difficulties managing their liquidity, and central banks needed to take action to support both the functioning of money markets and, in some cases, individual institutions.

BOX 1 Inadequacies of Current Banking Regulations
Source: Basel Committee, *Basel III: A Global Regulatory Framework*, ¶¶ 7–43.

After the Lehman Brothers bankruptcy in September 2008, the international community started discussions to create new regulatory standards that reflected the lessons of the financial crisis. Global leaders held the first G20 Summit Meeting in November 2008, and they asked the IMF, the Financial Stability Board (FSB), and relevant regulators to develop recommendations to enhance sound financial regulation. One year later, after receiving an FSB report with a series of regulatory recommendations, the G20 leaders committed to develop internationally-agreed rules to improve banking regulations by the end of 2010. Subsequently, in December 2009 the Basel Committee published draft proposals of new regulations (Basel III) for public consultation. In November 2010, the Basel Committee reported Basel

III to the G20 leaders, who endorsed the regulations and committed to begin implementation in 2013 and fully phase them in by 2019.

The final text of Basel III was published by the Basel Committee in December 2010.[23] It has become a comprehensive regulatory framework consisting of two parts: (1) improvement of capital standards and (2) new global minimum liquidity standards.[24] The liquidity standards include a liquid asset buffer for short-term liquidity coverage ("liquidity coverage ratio") and a long-term stable funding requirement to limit maturity mismatches ("net stable funding ratio").

Impact of the New Capital Regulation

The improvement of capital standards is substantial in comparison with the current regulations. Basel III redefined the regulatory capital ratio by narrowing the regulatory capital (the numerator of the ratio) and by enlarging the risk coverage (the denominator of the ratio). According to the quantitative impact study conducted by the Basel Committee, on average the newly-defined capital ratio (Common Equity Tier 1 ratio) of large banks decreases from 11.1 percent to 5.7 percent, due to the change of definition of capital and the changes in risk-weighted assets.[25] Furthermore, Basel III increased the required minimum capital level from 2 percent to more than 7 percent. Box 2 details improvements in capital regulation.

Because of these significant changes in the regulations, the deputy general manager of the Bank for International Settlements (BIS), Hervé Hannoun, called Basel III "a decisive breakthrough," explaining that the new capital standard would require banks to retain roughly as much as seven times higher capital in the form of common equity, depending on the bank's business model.[26] In fact, the industry sometimes refers to Basel III as the "regulatory tsunami," emphasizing the harshness of the regulatory reform.[27]

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23 Note that the Basel Committee published a revised version of Basel III in June 2011. It reflected a minor modification to the capital treatment for counterparty credit risk.

24 Note that the liquidity standards are not finalized. The Basel Committee set trial periods for the standards and will review and make appropriate adjustments to their definitions and calibrations. The implementation will start from 2015 for the liquidity coverage ratio and from 2018 for the net stable funding ratio.

25 Basel Committee, *Results of the Comprehensive Quantitative Impact Study*.

26 Hannoun, "Basel III Capital Framework."

27 See, for example, Global Association of Risk Professionals, "Surfing the Regulatory Tsunami."

- *Enhancement in the quality of capital*—Common equity and retained earnings ("Common Equity Tier 1") will become the center of regulatory focus,* thus allowing a greater loss-absorption capacity.† Also, the definition of common equity is strengthened by applying strict criteria for eligibility and by deducting certain types of assets that are questionable in loss-absorption capacity, such as goodwill and other intangibles.‡ According to the quantitative impact study conducted by the Basel Committee, the Common Equity Tier 1 ratio of large banks falls by an average of 41.3 percent, as a result of enhancement in the quality of capital;§
- *Improvement in the risk coverage of the capital framework*—The capital requirements for trading book exposures, complex securitizations, exposures to off-balance sheet vehicles and counterparty credit risk will be substantially strengthened. According to the quantitative impact study, on average, overall risk-weighted assets of large banks increase by 23.0 percent, due to the improvement in the risk coverage;‖
- *Increase in the level of capital*—The required minimum level of the Common Equity Tier 1 will increase from 2 percent to 4.5 percent of the newly-defined risk amount. Additionally, banks will be required to hold 2.5 percent as a capital conservation buffer (thus, banks need to hold 7 percent in total) to withstand future periods of stress. This buffer imposes a constraint on banks' discretionary distributions such as dividend payments and bonuses, as the bank's capital level moves closer to the minimum requirements;
- *Introduction of counter-cyclical capital buffer*—Banks will be required to build up capital buffers in good times that can be drawn down in periods of stress through capital buffers. A counter-cyclical buffer of 0 to 2.5 percent will be imposed in addition to the conservation buffer when the excessive aggregate credit growth is judged to be associated with an excessive buildup of system-wide risk; and
- *Introduction of capital surcharge for systemically important banks (SIBs)*#—A systemically important bank will be required to have higher loss absorbency as a capital surcharge ranging from 1 to 2.5 percent,** depending on a bank's systemic importance. To identify SIBs, regulators are expected to use five indicators including bank size, interconnectedness, lack of substitutability, global (cross-jurisdictional) activity, and complexity.

BOX 2 Improvement of Capital Regulation

Source: Basel Committee, *Basel III: A Global Regulatory Framework*.

Notes: * Under the Basel I and Basel II frameworks, the regulatory focus was on Tier 1 and Tier 2. These capital categories include preferred shares and subordinated debts, which have less loss-absorbing capacity than common equity.

† Common equity is the highest-quality component of bank capital because there is no requirement to pay it back, nor is there a legal requirement to pay dividends. It has also the lowest payment priority in bankruptcy, with the legal right only to receive any residual value after all other claimants are paid.

‡ These adjustments include goodwill and other intangibles, deferred tax assets, cash flow hedge reserve, shortfalls of the stock of provisions to expected losses, gains on sale related to securitization transactions, defined benefit pension fund assets and liabilities, investments in own shares (treasury stock), reciprocal cross holdings in the capital of banking, financial and insurance entities, significant investments in the capital of banking, and financial and insurance entities that are outside the scope of regulatory consolidation. See Basel Committee, *Basel III: A Global Regulatory Framework*, ¶¶ 52–90.

§ Basel Committee, *Results of the Comprehensive Quantitative Impact Study*.

‖ Ibid.

Technically, the regulatory treatment of SIBs is outside of the Basel III framework and has not been finalized yet. The Group of Governors and Heads of Supervision (GHOS), the oversight body of the Basel Committee, submitted the draft document on the SIBs to the FSB in June 2011. The FSB coordinates the overall set of measures for the systemically important financial institutions (SIFIs), and will make the document available for public comments from around the end of July 2011. Final recommendations will be delivered to the next G20 Summit in November 2011. See GHOS, "Measures for Global Systemically Important Banks."

** Note that GHOS, "Measures for Global Systemically Important Banks" implies the surcharge can be 3.5 percent to provide a disincentive "to increase materially their global systemic importance in the future," but it is not clear what conditions are assumed for such circumstances.

Implementation of Basel III

As with most other international agreements (e.g., treaties), the Basel standards have to be transformed into national laws or regulations to be effective.[28] This transition is an important process for establishing the domestic legitimacy of international agreements. While the regulator's legal basis in each country stipulates specific procedures and the extent of political involvement, in general, regulators conduct public consultations on their draft national regulations, asking for comments from banks and other financial institutions, and the input they receive from their consultations is reflected in the final form of the national regulations. In some countries, approval by legislature is required prior to finalizing national regulations.[29]

In this transformation process, national regulators have some flexibility on the regulatory level and in scope. This is mainly because the Basel standard is designed as the *minimum standard* for *internationally active banks*, rather than a uniform standard that is applicable to any banks in any country's circumstances.[30] In fact, more than a few countries set higher minimum levels of capital regulations[31] or supplementary measures,[32] and some countries establish separate regulatory standards that are applicable to domestic

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28 U.S. federal regulators implemented Basel II by publishing it in the Federal Register; Japanese regulators did it by publishing legal announcements (*kokuji*); and EU regulators did it by adoption of the Capital Requirement Directive (CRD).

29 For example, in the EU, amendments to the CRD proposed by the EU Commission have to be approved by the European Parliament and the European Council.

30 The Basel Committee clarified this point in paragraph 9 of the Basel II text. It describes that "it should be stressed that the revised Framework [Basel II] is designed to establish minimum levels of capital for internationally active banks. As under the 1988 Accord [Basel I], national authorities will be free to adopt arrangements that set higher levels of minimum capital. Moreover, they are free to put in place supplementary measures of capital adequacy for the banking organizations they charter." This is also confirmed in Principle 6 of the Committee's *Core Principles for Effective Banking Supervision*, which states that "at least for internationally active banks, these [prudent and appropriate minimum capital adequacy] requirements must not be less than those established in the applicable Basel requirement."

31 The minimum capital requirements in G20 countries are: 11.5% (Argentina), 11% (Brazil), 10% (Russia, South Africa), 9% (India), 8% (Australia, Canada, China, France, Germany, Italy, Japan, Korea, Mexico, Saudi Arabia, Turkey, UK, United States). See Barth, Caprio, and Levine, *Rethinking Bank Regulation,* 115–117.

32 In the United States, banks are also regulated in terms of their leverage—by maintaining more than 4 percent of capital to their (non-risk-based) total assets, in addition to the Basel-based regulation (risk-based capital requirement). See 12 C.F.R § 3.6, 6.4 (b)(2)(iii).

banks.[33] In this way, national regulators can have characteristics of their own industry and markets reflected in their regulations.

Another notable area of flexibility is regarding the implementation timeline. Historically, the Basel II timeframe was loosely implemented,[34] but the Basel Committee agreed on a concrete time schedule for Basel III implementation that was endorsed by the G20 leaders at the November 2010 Summit Meeting.[35] Thus, at least internationally, countries can be divided into two types in terms of their commitment to the implementation timeline:

Member countries of the Basel Committee or G20: national implementation of the new capital regulation will begin in January 2013 and the requirements rise each year to the newly-agreed levels, with the phasing-in fully completed in January 2019, as detailed in figure 1.

Non-member countries: implementation "may not be a first priority" in terms of what is needed to strengthen their supervision. Rather, the Basel Committee suggested they "should consider carefully the benefits of the revised Framework [Basel II] in the context of its domestic banking system when developing a timetable and approach to implementation."[36]

In sum, national regulators have flexibility in that they can set higher standards than Basel III if deemed appropriate under local circumstances, and similarly they can set shorter transition periods where appropriate.[37] In fact, recent press reports have noted that some countries, including Switzerland, the UK, and the United States, are expected to have shorter

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33 In the United States, Basel II applies to "core banks" (i.e., banks with consolidated total assets of $250 billion or more; or consolidated total on-balance sheet foreign exposures of $10 billion or more); in Japan, Basel II applies to "international standard banks" (i.e., banks with a branch or subsidiary in foreign countries); and in the EU, Basel II applies to all banks.

34 The members of the Basel Committee announced to fully implement Basel II from end-2007 (as shown at paragraph 2 of the Basel II text), and Japan and the EU implemented it from 2007, but no banks in the United States have applied Basel II as of June 2011. Note the United States with other major G20 countries committed to adopt Basel II by 2011. See the G20 Summit, "Leaders' Statement" (Pittsburgh: 2009), http://www.g20.org/images/stories/docs/eng/pittsburgh.pdf.

35 The G20 Summit, "Leaders' Declaration" (Seoul: 2010), http://www.g20.org/images/stories/docs/eng/seoul.pdf.

36 Basel Committee, *International Convergence*, ¶ 3.

37 Although this interpretation is not explicit in the Basel III text, it was confirmed in the speech of Nout Wellink, Chairman of Basel Committee on Banking Supervision, at the 16th International Conference of Banking Supervisors on September 22, 2010, and in the speech of Jaime Caruana, General Manager of the Bank for International Settlements, at the 3rd Santander International Banking Conference on September 15, 2010.

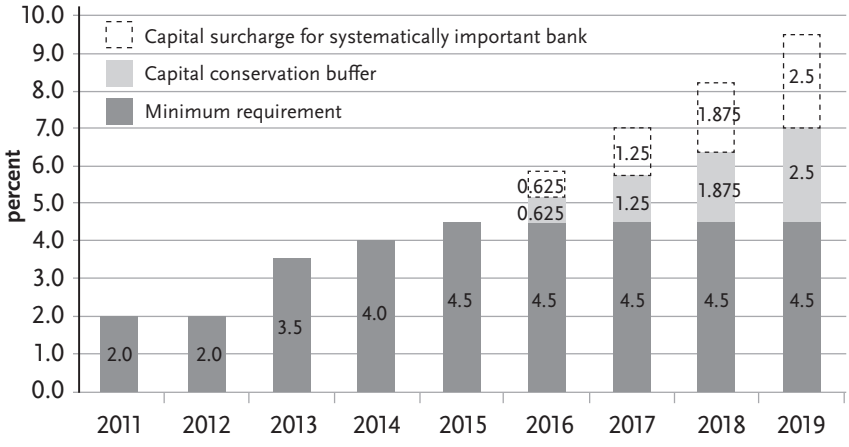

FIGURE 1 Phase-in Arrangements of Common Equity Tier 1 Level (2011–19)
Source: Basel Committee, *Basel III: A Global Regulatory Framework* and GHOS, "Measures for Global Systemically Important Banks," press release, June 25, 2011.
Notes: 1) All dates are as of January 1; 2) Capital surcharges shown are examples. Actual size depends on a bank's systemic importance and is up to 2.5 percent; 3) A countercyclical buffer of up to 2.5 percent will be additionally imposed when credit grows excessively.

timetables or higher capital and liquidity ratios than Basel III.[38] Likewise, the Portuguese regulator recently announced that banks would be required to hold a minimum Common Equity Tier 1 ratio of 8 percent by the end of 2011.[39]

38 Brooke Masters and Patrick Jenkins, "FSA Poised to Set Tougher Capital Rules," *Financial Times*, September 21, 2010.

39 Banco de Portugal, Notice of Banco de Portugal on "Core Tier 1" capital ratio," 2011, http://www.bportugal.pt/en-US/OBancoeoEurosistema/ComunicadoseNotasdeInformacao/Pages/combp20110407.aspx.

Cost-Benefit of the Regulation

Basel III will strengthen banking systems and stabilize financial markets, but it is not free of cost. For example, higher capital requirements may make it harder for businesses and individuals to obtain loans and may lower interest rates offered to depositors. In this section, I define the scope of analysis, and then review the literature of benefits and costs both in the long term and in the short term to prepare for the subsequent analyses of benefits and costs.

Scope of Analysis

Since a new regulation creates various types of cost-benefits, any analysis of such must first specify which ones are being scrutinized. For example, a past cost-benefit analysis of Basel II conducted by a U.S. regulator examined bank compliance costs and government administrative costs.[40] This paper examines the double-edged effects of Basel III in terms of impact on macroeconomic output (i.e., GDP): a *positive* impact (i.e., benefit) that reduces the probability of a crisis and serious economic recession, and a *negative* impact (i.e., cost) that reduces credit lending for corporations and consumers. This is consistent with the analysis by the Basel Committee, which I will discuss later.

Benefit (positive impact): A financial crisis causes serious recessions and has significant impact on economic performance. By introducing a new regulation, the banking system can become more robust and less prone to crises that have large macroeconomic effects in terms of foregone outputs. Thus, the benefit of the regulatory reform is the output gain associated with a reduction in the severity of a banking crisis.

Cost (negative impact): In an attempt to meet higher capital requirements, banks may reduce the amount of their credit lending or raise the lending rates they charge to borrowers. Some corporations and consumers will become unable to borrow from banks and will reduce their spending, which will reduce the amount of investment and consumption in the country, and economic output will decline. Thus, the economic cost of the regulatory reform is a possible reduction of economic output caused by a reduction of credit lending.

40 Office of the Comptroller of Currency, *Regulatory Impact Analysis*.

TABLE 1

Introducing Banking Regulations: Benefit-Cost Comparison

Benefit (positive impact)	**Cost** (negative impact)
Strengthen banking system	Banks may reduce lending
↓	↓
Reduce probability of a crisis	Firms and consumers reduce spending
↓	↓
Economy grows without crises (which are the cause of GDP decline)	GDP declines

Source: Author.

Literature on the Long-Term Impacts

To assess the long-term cost-benefits of Basel III, the Basel Committee established the Long-term Economic Impact Group (LEI) in 2010.[41] The assessment was conducted before the finalization of Basel III, and the results were used by the Basel Committee as an input to calibrate the level of the new standards.

Regarding the benefits, the LEI estimated the historic probability of a crisis is 4.6 percent per year, judging by the finding that there were 24 to 34 banking crises[42] in the member countries from 1985.[43] Also, the LEI estimated the median cost of a crisis (i.e., the cumulative output loss associated with a banking crisis) is 19–158 percent of annual pre-crisis GDP. The estimates have a large range because the cost size depends on how long the ef-

41 Basel Committee on Banking Supervision, *Assessment of Long-Term Economic Impact*.

42 Since the definition and identification of a banking crisis requires subjective judgement, the number of crises can vary from study to study. According to the LEI report, Reinhart and Rogoff (2009) identified 34 crises during the analysis period, and Laeven and Valencia (2008) identified 24 crises, both including the recent financial crisis.

43 The ratio is calculated as the number of crises (24, 34) divided by the number of the sample countries (25) times the number of years from 1985 to 2009 (25).

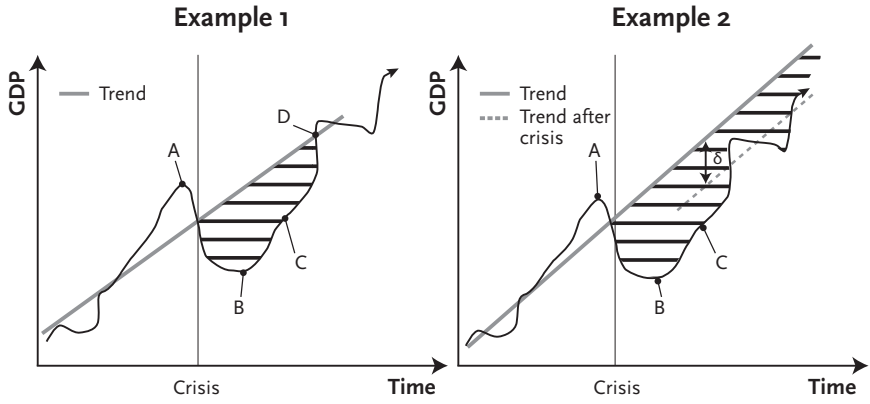

FIGURE 2 Measuring the Costs of Crises: A Schematic Overview
Source: Basel Committee, *Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements*, 9.
Notes: Point A=pre-crisis peak; point B=post-crisis trough; point C=GDP growth equals trend GDP growth for the first time after the crisis; point D=level of GDP returning to the pre-crisis level.

fects are estimated to have lasted.[44] Using the median estimate of the cost of a crisis across all comparable data (63 percent of annual pre-crisis GDP), the study calculated that each 1 percentage-point reduction in the annual probability of a crisis yields an expected benefit equal to 0.6 percent of GDP per year. Then the study examined, using economic models, how much Basel III would lower the probability estimate of a banking crisis. While the estimate includes considerable uncertainty on the exact magnitude of the effect, the study concluded that a 1 percentage-point increase of the capital ratio would cut the probability of crisis in half from 4.6 to 2.3 percent. The model-estimated change of GDP translates that into a benefit of 1.4 percent of GDP.[45]

Regarding the costs, the LEI estimated using a variety of macroeco-

44 One of the difficulties in measuring the cost of crises is that there are no clear criteria to determine the end of a crisis. As seen in example 2 of figure 2, GDP after a crisis often remains on a permanently lower path, albeit one with the same growth rate as that prevailing prior to the crisis. In the LEI study, the estimate for the cost of a crisis was 19 percent when it set "endpoints" for crises by the time GDP recovered to its pre-crisis peak, or by expert judgment, or by assuming that crises last a fixed number of years. The estimate was 158 percent when the study assumed "permanent" effects of crises in Example 2.

45 The study concluded "higher capital and liquidity requirements can significantly reduce the probability of crises" in its summary, but the specific data is shown in the body of the paper. See Cecchetti, "Strengthening the Financial System."

nomic models. It concluded that a 1 percentage-point increase in the capital ratio would lead to a 0.13 percentage-point increase in the lending spread, which would cause a loss of 0.09 percent of the annual median GDP from the baseline. A recent study conducted by the BIS found conclusions that are consistent with the LEI estimates.[46]

Overall, the main finding of the LEI is that, in the long-term, there is considerable room to tighten capital requirements and yield positive net benefits at the same time. Similar conclusions can be seen in other studies. For example, David Miles et al. estimated the costs and benefits of higher bank capital requirements by using UK bank data. They found that even proportionally large increases in bank capital were likely to result in only a small long-term impact on the lending rates.[47] They also estimated the average cost of capital was only a relatively minor 10–40 basis points when a bank doubles its capital. The analysis by Anil Kashyap also found that long-term steady-state impact on loan rates was likely to be modest, falling in the range of 25–45 basis points for a 10 percentage-point increase in the capital requirement.[48] Given the relatively mild impact of changes in capital ratios on the borrowing costs in the long term, the adverse impact on economic growth may also remain small.

However, there is a caveat concerning the LEI's findings. The reported estimates were based on the median values of the seventeen member countries, consisting of developed and emerging market countries, and the varied impacts on individual countries were not the focus of the study.[49] Other empirical studies show that the intensity and duration of every crisis varied significantly across countries. For example, the Japanese crisis of the 1990s was distinguished by its duration: it lasted a decade and spanned a number of recession and recovery periods. By contrast, the Nordic crises, as shown in figure 3, were relatively short and involved a single period of recession followed by a sharp recovery. While estimating the output losses in each crisis requires a number of assumptions and methodology, one study, for example, estimates that output losses as a percentage of annual GDP in the past financial crisis were between 24.1–71.7 percent for Japan, 2.5–11.8 percent for Sweden, and 9.8–27.1 percent for Finland.[50]

46 Angelini et al., "Basel III: Long-Term Impact."

47 Miles, Yang, and Marcheggiano, "Optimal Bank Capital."

48 Kashyap, Stein, and Hanson, "Analysis of the Impact of Substantially Heightened Capital Requirements."

49 Participating countries are: Australia Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Mexico, Netherlands, Russia, Spain, the United Kingdom, the United States, and the euro area.

50 Hoggarth, Reis, and Saporta, "Costs of Banking System Instability."

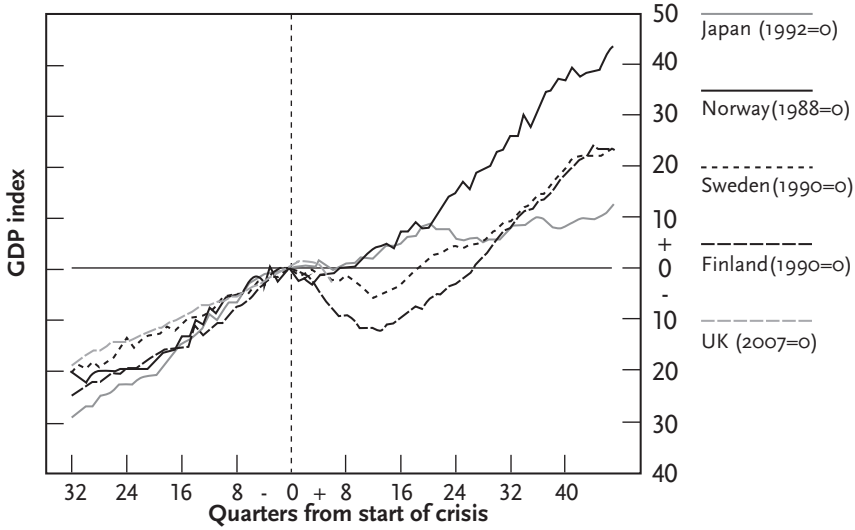

FIGURE 3 Real GDP Levels before and after a Financial Crisis
Source: Bank of England, *Financial Stability Report,* 2009: 21.

Literature on Short-Term Impacts

As the LEI was created to assess long-term impacts, the Basel Committee and the Financial Stability Board established the Macroeconomic Assessment Group (MAG) to assess the potential transitional costs of Basel III.[51] The MAG, assuming eight years for the implementation timeline and a constant return on equity, estimated that a 1 percentage-point increase in the capital ratio would lead to an increase of lending rate spreads by 15.5 basis points, and this would negatively impact on the real economy by approximately 1.4 percent in cumulative terms. As a result, the regulatory reform would lead to a cumulative reduction of GDP by 0.15 percentage points (0.22 percentage points including the impacts by new liquidity requirements) per year below its baseline level in terms of the median values across all national estimates. The peak impact would occur after thirty-five quarters from the beginning of implementation but the negative impact would recede over time. The results show that the transitional costs are minimal.

However, a study by the banking industry reached different conclusions. The Institute of International Finance (IIF),[52] assuming a 2 percentage point

51 Basel Committee, *Interim Report* and *Final Report*.

52 The IIF is the global association of financial institutions. The membership includes commercial banks, investment banks, insurance companies, and investment management firms.

increase in Tier I and overall capital, estimated that the lending rate would increase by as much as 132 basis points, and this would lead to a decline in GDP by 3.1 percentage points relative to its baseline level across the United States, Japan, and the euro area.[53] This can be translated into a GDP growth reduction of about 0.6 percentage points a year—considerably higher than the estimates by the MAG (0.22 percentage points). The IIF also estimated the GDP growth reduction for the three regional groups separately: 2.7 percentage points in the United States, 1.5 percentage points in Japan, and 4.4 percentage points in the euro area. The IIF concluded that impact on the euro area would be more significant because of its larger size and significance of the banking system relative to the economy as well as larger adjustments required for the banking system to meet the new regulations.

While the differences in these estimates are attributable to their different assumptions, data, and macroeconomic models, one of the key conceptual differences between them is the impact of strengthened capital ratios on the expected funding costs. According to financial theory, enhanced stability of financial institutions will be reflected in lower risk premiums and thus lower funding costs for banks, allowing banks to pursue lower return on equity (ROE). However, the IIF assumes that bank funding costs will rise because regulatory change will squeeze bank profit margins, and 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."[54] As a result, the IIF argues that banks are required to pursue higher ROE. On the other hand, the Basel Committee assumes ROE is unchanged at its historical average level to examine "an upper bound of the impact." The Committee assumes that any higher cost of funding is fully recovered by raising lending rates and reduced loan volumes in the short term and by raising lending rates (a full-pass-through assumption) in the long term. The difference in the recognition on the required ROE is reflected in the difference in the impact on lending rate increase.

Despite their differences, the Basel Committee and the IIF share the view that the implementation period length matters crucially for determining the extent of the transitional costs. Clearly, the longer the implementation period, the milder the negative impact on the economy. If the new framework were implemented hastily, banks would need to undergo sizable consolidation of their capital bases and carry out a reshuffling of their balance sheet structures over a short period of time. This could have some adverse im-

53 Institute of International Finance, *Interim Report*.

54 Ibid., 4.

pact on credit intermediation in the short term. As the transitional period is agreed to last from 2013 to 2018, the new regulation will become fully effective on January 2019. The next eight years will provide the banking sector time to adjust to the new regulatory requirements by earning retention and improved efficiency. The question of whether this is sufficient time for banking systems to minimize the costs of regulation may depend on the environment surrounding each banking system.

Implications from the Literature

The above discussion of the literature suggests the following implications:

In the long term, the economic benefits will exceed the economic costs. This is primarily because a crisis has long-lasting negative effects on an economy. Higher capital would reduce the probability of a banking crisis, and the costs of the crisis are not limited to the crisis year. The more permanent the effects of a crisis are on output growth, the larger the annual benefit.

In the short term, the extent of the economic cost is less clear, depending on the data used and underlying assumptions. This means that, for example, the cost will become larger if *actual* economic conditions are worse than the *assumed* economic conditions. Also, the length of the implementation period matters for determining the extent of the transitional costs.

Impacts vary by country. The IIF examined how the regulatory reform would impact the United States, Japan, and the euro area. Empirical studies also show that while every crisis had a significant impact on economic performance, the intensity and duration varied significantly across countries.

Basel III Benefits Analysis Under Different Regulatory Environments

In this section, I examine the differences in expected economic benefits under regulatory environments in the United States, Japan, and the EU. As discussed above, the economic benefits of the regulatory reform will be large 1) if it reduces the probability of a banking crisis and 2) if the expected costs of a crisis are large. The size of the banking sector in financial intermediation is crucial for the first case, and the size of bank assets relative to GDP is crucial for the second case.

Size of the Banking Sector in Financial Intermediation

Traditionally, banks (i.e., deposit-taking financial institutions) were the dominant suppliers of credit, but market-based institutions have increasingly supplanted their roles.[55] figure 4 compares the assets held by banks with the assets of the financial industry as a whole in selected countries. In the United States, banks held more than 40 percent of domestic financial assets in 1987, but the share dropped to only 22 percent in 2007. A similar trend is seen in Japan and the UK, but its magnitude was more moderate. While the share of financial assets held by banks declined by 8 percentage points in Japan and 10 percentage points in the UK between 1987 and 2007, it is still over 50 percent in both countries. The share in the euro area remains nearly constant over the last 10 years.

The increasing size of the non-banking sector in the United States is primarily due to the growth of securitization and financial companies. Figure 5 shows the U.S. data in more detail. At the beginning of the 1980s, the banking sector had almost 50 percent of financial assets held by financial institutions, but the share declined gradually and constantly through the 1990s and leveled off thereafter. Meanwhile, there has been a large shift from

55 "Bank" is defined as a company that accepts demand deposits and provides commercial loans. See, for example, Section 2 of the U.S. Bank Holding Company Act of 1956.

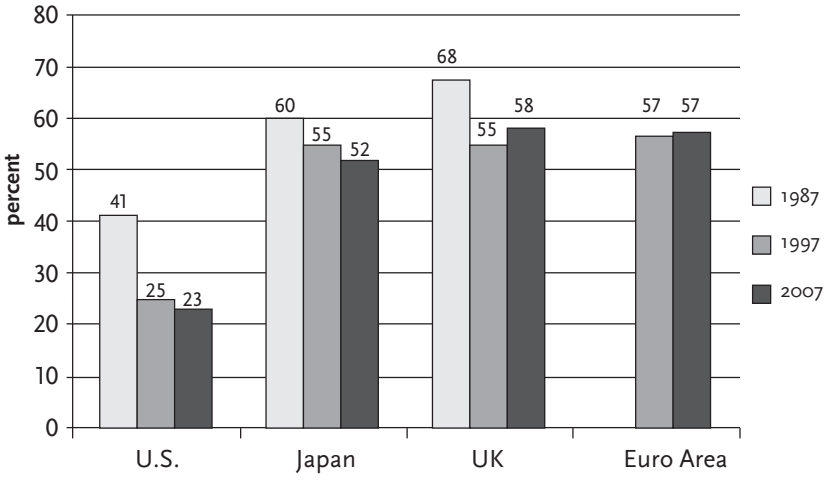

FIGURE 4 Bank Assets as Share of Financial Industry, 1987–2007
Source: Federal Reserve System, *Flow of Funds;* Bank of Japan, *Shikin Junkan Tokei* [Flow of Funds]; International Monetary Fund, *Global Financial Stability Report*, October 2008.
Note: 1) Figure shows the share of deposit-taking financial institutions in financial assets held by financial institutions (excl. monetary authorities); 2) Euro area data is from 1999 and 2007.

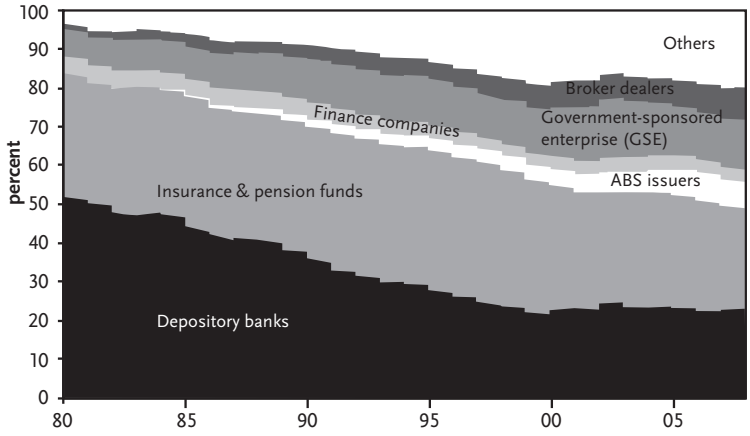

FIGURE 5 Breakdown of the U.S. Financial Sector (percent of total assets), 1980–2008
Source: Federal Reserve System, *Flow of Funds*.
Note: 1) Share of each financial sector in financial assets held by financial institutions (excl. monetary authority); 2) Government-sponsored enterprises (GSEs) include agency- and GSE-backed mortgage pools. Broker dealers include funding corporations.

demand deposit towards money-market-mutual funds (MMMFs)[56] as well as long-term growth of government-sponsored enterprises (GSEs),[57] asset-backed securities (ABS) issuers,[58] and broker dealers.[59] This growth accelerated around 2000.

These non-bank financial institutions have been recently called the "shadow banking system" and have been regarded as a source of the recent financial crisis.[60] For example, the crisis symbolically began from the failures of investment banks, such as Bear Stearns and Lehman Brothers; GSEs experienced unprecedented losses on their mortgage portfolios and their guarantees, which invited a total of $145 billion of capital injection by the government; and the MMMFs experienced significant withdrawals of

56 In the United States, MMMFs originated in the 1970s from a desire by investors to escape Regulation Q, which set a ceiling on interest rates offered by banks on demand deposits, and to avoid the reserve requirements imposed on banks. Their value grew from $76.36 billion in 1980 to $1.85 trillion by 2000, an increase of over 2,000 percent, reaching a peak of $3.8 trillion in 2008, making them one of the most significant financial product innovations of the last fifty years. See Gorton and Metrick, "Regulating the Shadow Banking System." It should be noted that this trend is not universal. The ratio of total net assets of MMMFs to amounts of outstanding of bank deposits in 2008 were 43.4 percent in the United States; 0.2 percent in Japan; 4.5 percent in the euro area; and 0.03 percent in the UK. In Japan, MMMFs grew in the 1990s as investors sought higher yields to offset close to zero interest rates on bank deposits as the result of the Bank of Japan's monetary easing. However, after several MMMFs' net assets fell in 2001, mainly due to defaults of bonds issued by Enron, investors shifted their funds back to bank deposits, and MMMF investments have remained low since then. See International Monetary Fund, *Global Financial Stability Report*, 65–69.

57 GSEs include the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). Fannie Mae was created as part of the New Deal policies in 1938 to help stabilize the mortgage market by purchasing, holding, or selling mortgage loans insured by the Federal Housing Administration. Freddie Mac was created in 1970 to provide competition to Fannie Mae. They finance home mortgages through issuing agency- and GSE-backed securities, which particularly attracted banks and foreign investors because they were implicitly (and in fact) guaranteed by the government. See Acharya, *Regulating Wall Street*, 429–442.

58 ABS issuers are typically bank-controlled conduits that securitize mortgage and consumer credits, and are financed by ABS and asset-backed commercial paper (ABCP).

59 Securities brokers and dealers are largely investment banks that finance their traded assets by security repo agreements and other types of credit that are advanced by banks, MMMFs, and foreign entities. Note that Goldman Sachs and Morgan Stanley were investment banks, but converted themselves to bank holding company status at the height of the crisis in late 2008.

60 The term "shadow banking system" is used recently in the news media and in policy discussions, but it is not clearly defined. The Financial Stability Board has proposed to define it as "the system of credit intermediation that involves entities and activities outside the regular banking system." See Financial Stability Board, *Shadow Banking*.

funds by investors and were forced to meet withdrawal demand by selling assets in illiquid markets.

Importantly, these non-bank institutions have been outside the focus of authorities and subject to less regulation than banks. They perform bank-like functions as intermediaries between investors and borrowers,[61] but they have not been treated as banks because they do not accept deposits. Thus, an emerging concern is that even if banking regulation is significantly strengthened by the introduction of Basel III, the probability of "financial crisis" will not be sufficiently reduced in a country where the shadow banking system dominates in the financial industry. Rather, the drive to impose more regulation on banks could "cause the next crisis by pushing risky activities towards hedge funds[62] and other lightly supervised entities." [63]

Size of Banking Sector Relative to GDP

In general, the cost of a bank crisis will rise as the banking system becomes larger in relation to the size of a country's economy.[64] For example, in the recent crisis, the balance sheet size of the Icelandic banking sector was as much as 880 percent of the country's GDP at the end of 2007. When the country's three main banks collapsed during the same week in October 2008, Iceland experienced an extreme crisis: the unemployment rate jumped from 2.5 percent in the third quarter of 2008 to 7.1 percent by the first quarter of 2009, and its GDP shrank by around 7 percent.[65]

In many countries, bank assets are much larger than the country's GDP. Figure 6 shows the size of bank assets relative to the size of GDP in the bank's home country. The UK banking system holds four times more assets than its GDP. In Ireland and Switzerland, countries with the largest banking systems, bank assets are around seven to nine times higher than their GDP. Bank assets in the United States and Japan are generally smaller than the banks in the EU.

Although it is true that many other factors influence the magnitude of a

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61 For example, an institutional investor like a pension fund lends money, and a corporation searches for funds to borrow.

62 According to a European think tank, Eurofi, the volume of money managed by hedge funds has been increasing since the beginning of 2010. It notes that hedge funds are hiring proprietary traders from banks. Eurofi, "Shadow Banking."

63 Gary Cohn, quoted in Francesco Guerrera and Gillian Tett, "Goldman President Warns on Bank Rules," *Financial Times*, January 26, 2011.

64 Note that the real impact on the economy will be also influenced by other factors (e.g., the extent and methods of government involvement in the crisis).

65 Organisation for Economic Cooperation and Development, "Economic Survey of Iceland, 2009," *OECD Policy Brief* (September 2009): 4.

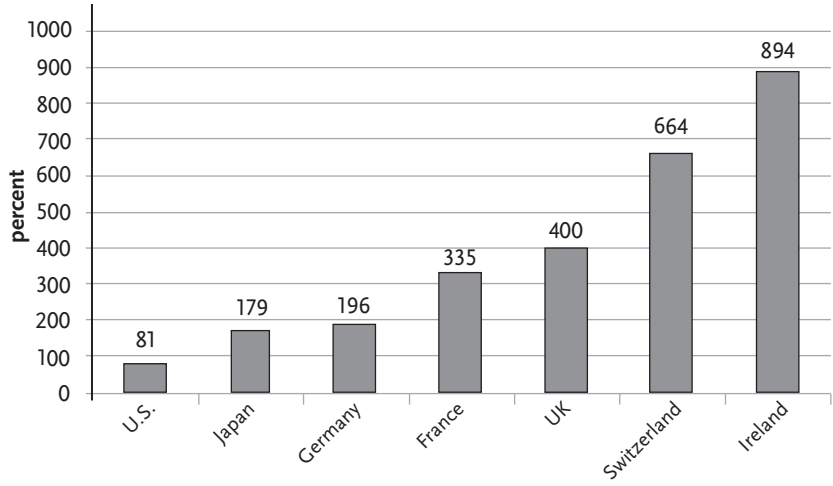

FIGURE 6 Bank Assets to GDP, 2007
Source: International Monetary Fund, *Global Financial Stability Report*, 2008; International Monetary Fund, *Cross-Cutting Themes in Economies with Large Banking Systems*, 2010

banking crisis, these facts suggest that a country with large banking assets may experience larger economic losses if regulators fail to keep the banking system sound. In other words, such countries will receive larger economic benefits by strengthening banking regulations.

Basel III Costs Analysis Under Different Regulatory Environments

In this section, I examine the economic costs under the differing financial and regulatory environments in the United States, Japan, and the EU. As discussed above, the economic cost of the regulatory reform will depend on 1) how the banks attempt to meet higher target ratios for capital, and 2) how their responses affect aggregate economic activity. Regarding the first case, I examine how much additional capital banks need to raise and whether they can raise their capital ratios without reducing lending. Regarding the second case, I examine how large an impact banks have on the economy and who bear the costs of regulatory reform.

Additional Capital that Banks Need to Raise

In general, the transitional costs of regulatory reform will depend on the size of the gap between existing ratios and the new ratio required by Basel III. If banks already satisfy the new capital level, policymakers will be less concerned about the regulatory cost, at least in the short term.[66] Since the precise data for establishing the new capital ratio is not publicly available,[67] the capital ratios estimated by a credit rating agency, Standard & Poor's (S&P), are examined in this paper as internationally comparable inputs.[68] The S&P ratio is not the same as the Basel III ratio, but it still allows us to understand broadly how much additional capital each bank will need to meet the new regulatory requirements.

Table 2 shows the capital ratio of selected large international banks as of June 2010. It suggests that many banks are already close to the new required capital level of 7.0 percent (i.e., the minimum ratio of 4.5 percent plus

66 Note that, even in the short term, economic events, such as asset devaluation triggered by sovereign crises and borrowers' defaults after large earthquakes, may cause the decline of banks' capital ratios.

67 As discussed earlier, the new capital ratio, Common Equity Tier 1, is redefined by a new numerator (common equity plus retained earnings minus adjustments) and a new denominator (bank's risk exposure). Due to the transitional arrangements set by the Basel Committee on the adjustments and the risk exposure, banks have disclosed neither their final capital ratios nor composites to calculate them.

68 S&P publishes bank capital ratios in a globally consistent framework, called the risk-adjusted capital (RAC) ratio, which enables us to compare bank solvency, regardless of where banks operate. See Standard & Poor's, *Bank Capital Methodology and Assumptions*, January 2011.

TABLE 2

Capital Ratio and Gap to Regulatory Requirement (June 2010)

Bank	Home Country	Capital Ratio	Gap to 7.0%	Gap to 9.5%
HSBC	UK	7.1%	+ 0.1%	- 2.4%
UniCredit	Italy	6.8%	- 0.2%	- 2.7%
RBS	UK	6.5%	- 0.5%	- 3.0%
JPMorgan Chase	US	6.4%	- 0.6%	- 3.1%
Mitsubishi UFJ	Japan	6.3%	- 0.7%	- 3.2%
BNP Paribas	France	6.0%	- 1.0%	- 3.5%
Citigroup	US	5.7%	- 1.3%	- 3.8%
Bank of America	US	5.6%	- 1.4%	- 3.9%
Deutsche Bank	Germany	5.5%	- 1.5%	- 4.0%
Sumitomo Mitsui	Japan	5.5%	- 1.5%	- 4.0%
Mizuho	Japan	4.2%	- 2.8%	- 5.3%

Source: Bernard de Longevialle and Thierry Grunspan. "Despite Significant Progress, Capital is Still a Rating Weakness for Large Global Banks." Standard & Poor's, January 2011.
Note: Capital ratios are the risk-adjusted capital (RAC) ratios defined by Standard & Poor's.

a conservative buffer of 2.5 percent). However, they still need to raise more capital to reach the required capital level of 9.5 percent (additional capital of up to 2.5 percent is required for a systemically important bank [SIB]).[69] In addition, banks will need to raise up to 2.5 percent more capital as a counter-cyclical buffer when regulators recognize a robust economy with excess credit growth (see box 2 for details). The data also suggests that the banks in the United States and the UK have larger capital ratios than German and Japanese banks. The U.S. and UK banks accepted public capital injection in the face of the severe financial crisis,[70] and furthermore their regulators conducted stringent stress tests to ensure the resiliency of the banking system.

69 Mizuho Bank might not be identified as an SIB due to its less active cross-border operations, but Yasuhiro Sato, president and CEO of Mizuho Corporate Bank, said the Mizuho Financial Group aimed to fulfill capital requirements that would be applied to SIBs even if regulators didn't regard Mizuho as an SIB. See Atsuko Fukase, "Mizuho FG will respond the G-SIFIs regulation," *The Wall Street Journal* (Japanese edition), February 15, 2011.

70 The U.S. financial sector raised about $0.7 trillion capital since July 2007, including about $0.4 trillion public funding, while the Japanese financial sector raised about $0.07 trillion capital from the market as of March 2010.

In Japan, the regulator has not imposed such harsh requirements on banks, partially because the Japanese financial system was relatively sound compared with those in the United States and Europe during the recent financial crisis.

Raising a Bank's Capital Ratio—Concepts

Banks generally have three possible methods to raise their capital ratios: issuing new equity, reducing risk-weighted assets,[71] and increasing retained earnings.[72] Each method in turn may employ a number of strategies that can exert varying influence on the amount of credit lending. Some of these methods decrease the banks' amount of credit lending, and others do not. Banks will choose the best combination of these methods, based on their business and regulatory environments, which will be examined below.

If banks *reduce risk-weighted assets* by lowering the size of their loan portfolio, their credit lending will drop. This has been discussed as a "credit crunch" in a number of studies.[73] For example, the UK experienced a large drop in credit formation during 1990 and 1991, when it saw a pronounced upward trend in banks' risk-weighted capital ratios after the introduction of the Basel I capital regime.

However, the result is different if banks reduce risk-weighted assets by lowering the size of non-loan assets or by shifting their balance sheet composition towards less risky assets. For example, if banks sell corporate or real estate stock to reduce risk-weighted assets, credit lending will not drop. Alternatively, if banks cut lending to high-risk start-up companies and add the same amount of lending to less risky large firms, the overall credits in the economy remain the same while small firms with low credit ratings would be worse off by this operation.

If banks *issue new equity*, banks will change their behaviors on credit lending in a way that raises lending rates for their borrowers, and thus credit lending will drop. It is said that this is because capital is *expensive*, but this is controversial. The proponents of this view, mostly banks and their analysts,

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71 A bank can reduce risk-weighted assets by 1) lowering the size of loan assets, or 2) lowering the size of non-loan assets, or 3) shifting its balance sheet composition towards less risky assets.

72 Retained earnings are a portion of net income that is retained by the firm rather than distributed to its owners as dividends. A bank can increase retained earnings by 1) reducing dividend payments, or 2) increasing operating efficiency (e.g., by reducing compensation), or 3) raising average margins between borrowing and lending rates, or 4) increasing non-interest fee income.

73 For example, see Berger, Kyle, and Scalise, "Did U.S. Bank Supervisors Get Tougher."

argue that banks are required to raise lending rates (to the extent the banks can keep the ratio of return on equity) to cover the higher cost of funding, as capital is *expensive*, carrying more risks for investors than debt securities or deposits.[74] They also argue that such an action requires approval from the current shareholders, who otherwise suffer from the reduced returns unless lending rates rise. Other analysts support this view, because there is asymmetric information between banks and investors—banks are reluctant to issue new equity because investors may interpret it as a negative business signal, and thereby knock down their stock prices.[75] This implication is particularly important for bank managers who hold stock options and whose compensation levels are determined by their stock prices.

The opponents of this view, mainly academic scholars, argue that capital is *not expensive* and thus banks are not required to pay a higher return to their investors because the banks become less risky in response to a reduction in bank leverage. For example, Modigliani and Miller demonstrated that capital structure (debt to capital ratio) is irrelevant to lending and its pricing in a "perfect market," and a firm can achieve any particularly desirable mix of debt and capital at negligible cost.[76] However, it is known that the theory is valid under a restrictive set of assumptions, which need to be relaxed in order to understand capital structure decisions in the real world. In particular, corporate tax treatment favors interest payments on debt (tax-deductible) over dividend payments on equity, thus it reduces the cost of higher leverage. Douglass J. Elliott studied the long-term effects of tightening capital requirements on bank lending spreads in the United States, and found the effects are relatively small if debt and equity investors demand lower returns.[77] Also, Anat Admati and others argue that capital is not expensive because the required return on equity, which includes a risk premium, must decline when more equity is used.[78]

In sum, banks are concerned about the practical issues of their shareholders' claims and negative impact on the stock market, while their opponents are concerned about the theoretical problem of finance that explains the risk-return relationship of investment. It seems that the opponents still need to find out whether, in reality, investors reflect their theory of the risk-reduction effect of capital increase. Especially after observing the extensive government bailouts during the recent financial crisis, investors may not be-

74 Institute of International Finance, *Interim Report*.
75 See Myers and Majluf, "Corporate Financing and Investment Decisions."
76 Modigliani and Miller, "Cost of Capital."
77 Elliot, "Quantifying the Effects on Lending of Increased Capital Requirements."
78 Anat Admati et al., "Fallacies, Irrelevant Facts, and Myths."

have rationally, nor do they respond in the short term. If this is the case, bank managers would have an incentive to raise lending rates or decline to issue new capital.

If banks *increase retained earnings*, credit lending will not reduce, unless such an increase is achieved by raising lending rates. Banks can do so by: 1) increasing their profits (i.e., net income) through increasing operating efficiency and non-interest fee income; or 2) reducing dividend payments. There is an argument that even the increase of retained earnings can raise the cost of equity through changes in the balance sheet structure. The reason is that these changes will increase tax payments under the current corporate income tax rules where debt is tax-deductible.[79] However, such a cost is estimated to be negligible.[80]

Raising Capital Ratio—Bank Profitability

A bank's profitability is an important factor in raising its capital ratio. It is an internal source of capital as well as a necessary condition to attract equity investors. As discussed, if banks raise their capital ratio via an increase of retained earnings, the impact on the bank's lending activity is marginal, and thus it is a preferable option for the economy because that can reduce the costs of regulation. As banks are more profitable, they can raise their capital ratios more easily and quickly.

An international comparison of banks' profitability shows a unique variation. Figure 7 shows banks' return on assets (ROA) and return on equity (ROE) in averages for the past twenty years in selected countries. U.S. and UK banks realized the highest profitability during the period, while Japanese banks experienced a significantly low profitability. Figure 8, comparing the trend of bank ROA in the United States, Japan, and the UK, shows that the ROA of Japanese banks was negative from 2000 to 2002, when they suffered large losses stemming from the disposal of impaired assets after the Japanese financial crisis in the late 1990s, and thereafter remained around 0.3 percent. In contrast, the ROA of U.S. banks remained high. UK banks attained a high ROA in the early 2000s, but it declined thereafter. While we cannot forecast future profitability of banks, especially after the changes of regulatory environments, it would be challenging for many Japanese banks to rely on the increase of retained earnings method to achieve the new required capital ratio.

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79 Kashyap calls the balance sheet type of cost "stock cost" to differentiate it from the cost raised by issuing new equity to reduce leverage ("flow cost"). See Kashyap, Stein, and Hanson, "Analysis of the Impact."

80 Locarno, "Macroeconomic Impact of Basel III," 9.

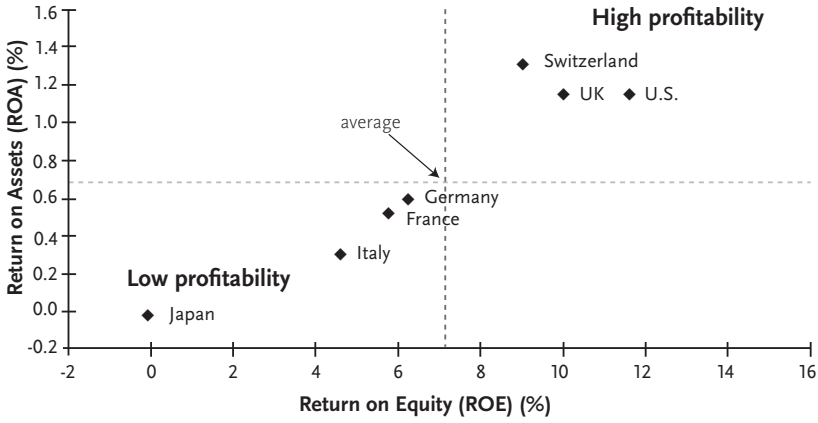

FIGURE 7 Bank Profitability, 1990–2009 (average)
Source: World Bank, Financial Structure Dataset (November 2010).
Note: 1) ROA: net income/total assets 2)ROE: net income/total equity.

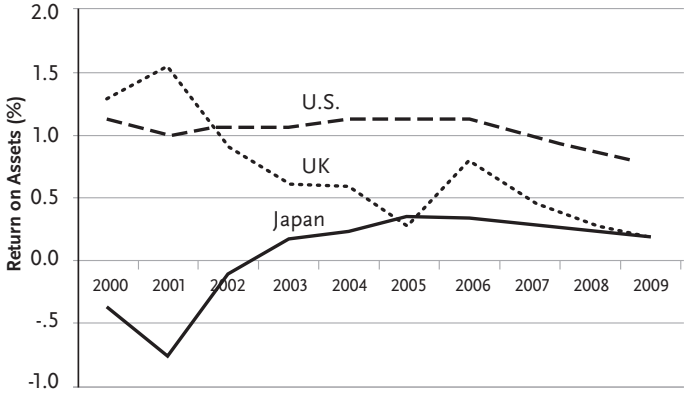

FIGURE 8 Bank Return on Assets (ROA), 2000-2009
Source: World Bank, Financial Structure Dataset (November 2010).

It has been discussed that the low profitability of Japanese banks is attributable to their low interest income.[81] As figure 9 shows, the interest rate margin on loans (i.e., the interest rate on lending minus the interest rate on deposits) for the past ten years has remained around 1.7 percent for Japanese

81 See, for example, Yamaguchi, "Challenges for Japanese Financial Institutions"; Bank of Japan, *Financial System Report* (2010); and Shirotari and Oyama, "Kin'nen ni okeru hōgin no shūeki teimei no haikei to kongo no kadai."

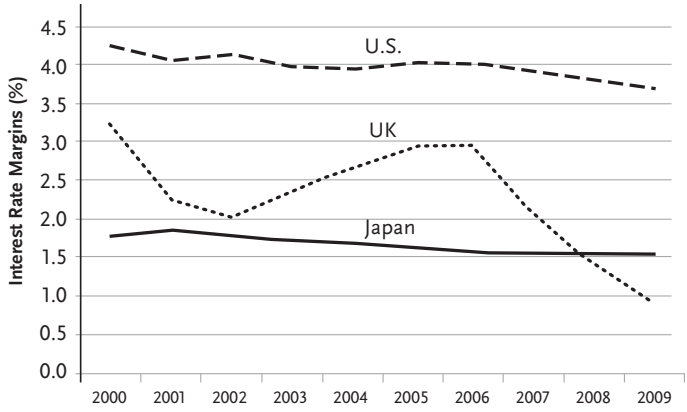

FIGURE 9 Interest Rate Margins on Loans, 2000–2009
Source: World Bank, Financial Structure Dataset (November 2010)
Note: The figure shows the accounting value of banks' net interest revenue as a share of their interest-bearing (total earning) assets.

banks, while it has been 4.0 percent for U.S. banks. The major reasons for this low interest income are:

Macroeconomic condition: Since the early 1990s, after the asset bubble burst, Japan has experienced a slow and sometimes negative growth, coupled with price deflation.[82] This has led to 1) the easing monetary policy (sometimes called "zero interest rate policy") for more than a decade, and 2) the low profitability and low credit demand of the corporate sector. Both factors have narrowed bank interest spreads. Figure 10, a time-series comparison of ROA in the Japanese banking and corporate sectors, shows a strong correlation of the two sectors' performances. The bank's low ROA reflects not only the corporate sector's low profitability but also the credit volume. Figure 11 shows the growth of credit in the private non-financial sector, which has been negative in Japan from 1999 to 2005 and remained much lower than other countries' until the recent financial crisis.

Industry structure: It has been said that there were an excessively large number of banks in Japan, sometimes referred to as "over-banking."[83] For example, in its annual report on the Japanese economy, the Japan Cabinet Office mentions many economic indicators (e.g., size of loans outstanding to nominal GDP ratio, large banks' share in the lending market, number of banks, and loan to deposit ratio) that suggest that Japan has been over-bank-

82 The average of GDP growth in Japan is 0.67 percent since 1992 and 0.35 percent since 1998.

83 Hoshi and Kashyap, "Solutions to Japan's Banking Problem."

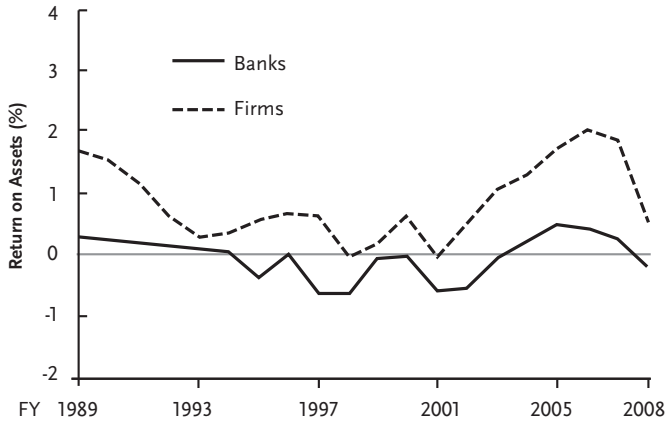

FIGURE 10 Comparison of Return on Assets in Japan, 1989–2008
Source: Japanese Ministry of Finance. *Houjinkigyo Toukei Nenpo* [Financial statements statistics of corporations by industry].
Note: on a net income basis.

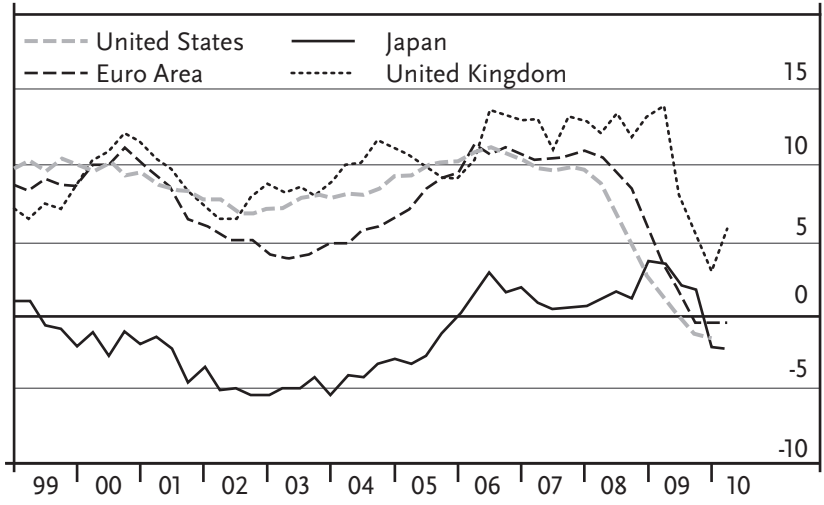

FIGURE 11 Credit to the Private Non-Financial Sector, 1999–2010
Source: Bank for International Settlements, *80th Annual Report*, June 2010: 34.

ing, although it does depend on how "over-banking" is defined.[84] Under such conditions, banks have engaged in excessive interest rate competition with each other in a relatively small domestic market, lowering interest spreads.

Risk management: Japanese banks tend to emphasize the importance of long-term stable business relationships with their clients, a banking sector–client attitude that has often been characterized as the "main bank system" or "relationship banking." Such relationships were effective when the costs of obtaining credit information on clients were expensive, the economic cycle was stable, and property prices consistently increased.[85] However, there is a view that such conditions in Japan largely disappeared after the late 1980s.[86] According to this view, the banks failed to adjust their business practices to the changing economic environment and may have taken excessive risks and incurred large costs relative to interest incomes. In other words, their low profitability may be a result of their traditional business practices.

Raising Capital Ratio—Bank Cost of Equity

When bank managers plan to raise common capital and make investment decisions, the cost of equity is an important determinant. It is the expected return that investors require to purchase common capital of the bank. The capital asset pricing model (CAPM) is one of the most commonly used methods by financial advisers and others to estimate a firm's cost of equity.[87] It considers that the expected return demanded by investors should compensate the additional risk incurred from adding a given security to a diversified equity portfolio. Based on the model, cost of equity is calculated as the sum of the firm-specific premium and the return on a risk-free asset. The firm-specific premium is calculated by a sensitivity measure of a stock's returns to market risk (the CAPM beta) and the equity market risk premium.

Michael King, an economist at the Bank for International Settlements (BIS), estimated the cost of equity based on the CAPM for global banks in major countries from 1990 to mid-2009.[88] His study found UK banks

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84 The Japan Cabinet Office, *Nenji Keizai Zaisei Houkoku* [Annual report on the Japanese economy and public finance] (2008): 197–202.

85 See Shiratori and Oyama, "Kin'nen ni okeru hōgin no shūeki teimei no haikei to kongo no kadai."

86 Shiratori and Oyama explain that 1) the cost of credit information significantly reduced because of the development of the market-based financial system and information technology, 2) uncertainty increased on the economic cycle after the burst of the bubble economy, and 3) the property prices have consistently decreased after the bubble economy.

87 Graham and Harvey, "Theory and Practice of Corporate Finance."

88 King, "Cost of Equity for Global Banks."

had enjoyed the lowest average cost of equity over this period, followed by French, U.S., and German banks, while Japanese banks had faced the highest cost (figure 12). It also found that the cost of equity had declined steadily across all major countries except for Japan during the period between 1990 and 2005 but had risen from 2006 onwards. King explained that the fall in the cost of equity reflected: (1) a decrease in risk-free rates over this period; and (2) a decline in the sensitivity of bank stock returns to market risk (the CAPM beta). In Japan, while risk-free rates declined during the period, this was offset by a rise in the banking sector risk premium, due to both its higher CAPM beta[89] and its high equity market risk premium.[90]

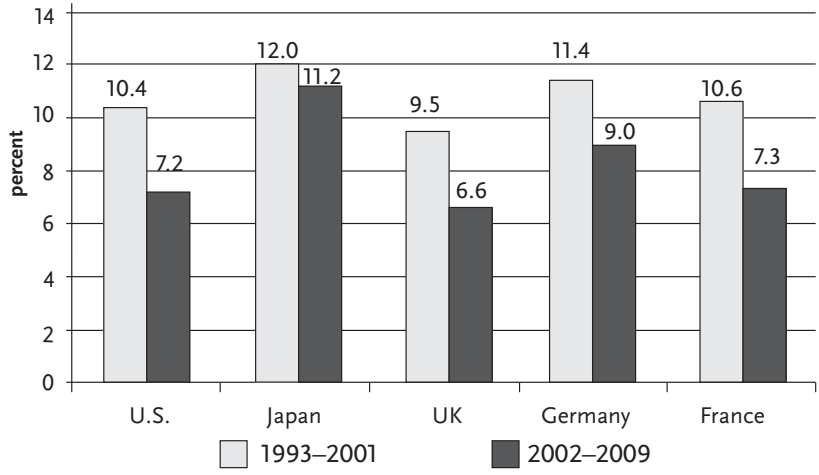

FIGURE 12 Cost of Equity (inflation-adjusted), 1993–2001 vs. 2002–2009
Source: Michael R. King, "The Cost of Equity for Global Banks: A CAPM Perspective from 1990 to 2009." *Bank of International Settlements Quarterly Review* (September 2009).
Note: Estimates based on the CAPM.

89 According to the study, the CAPM beta (i.e., the sensitivity of bank stock returns to market risk) increased in Japan from 0.9 (1990–2000) to 1.1 (2006–2009), while that of other countries decreased. This means higher covariance of bank stock returns with market returns in Japan.

90 The study estimates risk premium of equity markets (i.e., the incremental return that investors require from holding risky equities rather than risk-free securities) from historical data, as a premium relative to long-term government bonds from 1900 to 2001. The mean values are 6.7% in the United States, 10.0% in Japan, 5.5% in the UK, 9.6% in Germany and 6.7% in France.

While the study estimates are sensitive to assumptions and vary among banks,[91] the study shows that bank cost of equity is quite different among countries. It suggests that investors think the common equity of Japanese banks is riskier, and that they require a larger expected return. This, combined with the previous analysis of profitability, indicates that raising capital is more challenging for Japanese banks.

Size of Banking Sector in Financial Intermediation

When banks reduce their credit to the economy, small and medium-sized enterprises (SMEs) especially face funding difficulties, because they may be unable to borrow money directly from the market. But if alternative resources, such as hedge funds or government-sponsored enterprises (e.g., Fannie Mae, Freddie Mac in the United States) are available, this cost will be mitigated.

As discussed earlier in the analysis of benefits, the non-banking financial sector has increasingly expanded its role in financial intermediation, especially in the United States. On the other hand, banks still play a large role in financial intermediation in Japan and the EU. The cost of added regulations would be larger in these countries.

Cross-Border Bank Lending

The costs of the regulations will remain domestic as long as banks lend money only within the country. However, as banks operate on a global basis, their lending and costs (and benefits) cross over national borders. This cross-border lending has trended upwards in most countries and has been a common practice for banks in European countries. Figure 13 shows that the share of banks' cross-border lending in their total lending is much larger in European banks and has grown strongly over the past five years. For Japanese and U.S. banks, the share has grown only modestly and because they have large domestic markets it still remains less than 15 percent of their total lending.

Large cross-border lending in Europe is not an accident but a result of public policy efforts to create a single financial market within the EU region.[92] In 2004, the EU's Economic and Financial Affairs Council (ECOFIN)

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91 For example, the study used a constant equity market risk premium for each country based on its long-term average (102-year period from 1900 to 2001), but it could alternatively use some time-varying estimates of the premiums to make the assumption more realistic. The study noted that the historical proxies have high standard deviations that are three times larger than the averages, suggesting periods with large positive and negative values.

92 See, for example, European Central Bank, *Financial Integration in Europe*, 33–43.

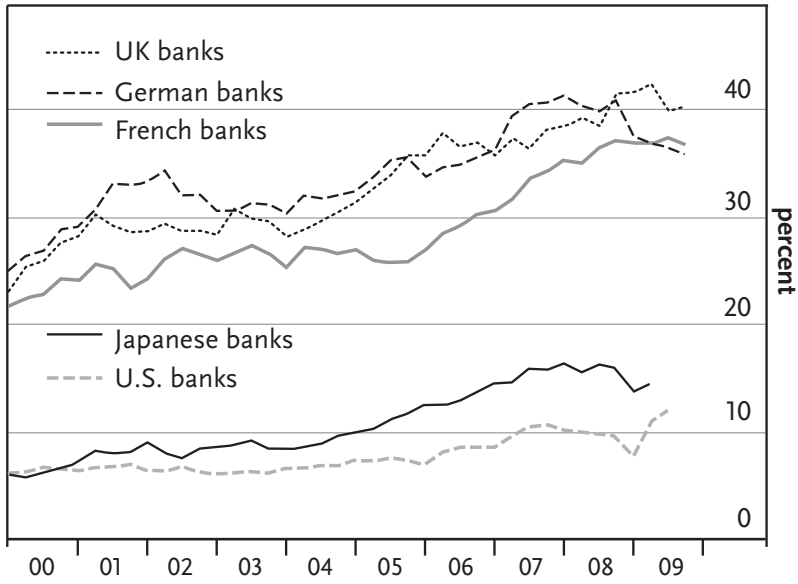

FIGURE 13 Cross-Border Lending to Total Lending (in percent), 2000–2009
Source: Bank for International Settlements, *80th Annual Report*, June 2010.

called upon the European Commission to study possible obstacles to cross-border consolidation in the EU banking sector, and later built policy strategies following the study. For example, their bank regulators enhanced a prudential framework for cross-border banking by streamlining the supervisory interface, rationalizing bank compliance burdens, responding to the growing degree of functional integration within groups, and so on.[93]

As table 3 shows, 74 percent of cross-border lending of euro area countries was within the EU region (euro area and the UK) in late 2010. Only 10 percent and 6 percent of the region's total lending were to the United States and to Japan, respectively. Thus, for the EU, a significant share of the cost of regulation will occur outside the country. Therefore, the majority of the cost of the regulation will be shared among other EU countries.

93 For example, the Committee of European Banking Supervisors (CEBS) developed common standards, guidelines, and interpretative recommendations for the practical performance of supervisory tasks on a day-to-day basis with a view to identifying and gradually converging towards best practices. The tasks and responsibilities of the CEBS were taken over by the newly established European Banking Authority (EBA) in January 2011.

TABLE 3

Share of Foreign Lending, September 2010

	United States	**Japan**	**Euro Area**
United States	—	38%	10%
Japan	20%	—	6%
Euro Area	33%	32%	61%
United Kingdom	20%	18%	13%
Others	26%	12%	10%
Total	100%	100%	100%

Source: Bank for International Settlements, *BIS Quarterly Review*, March 2011.
Note: Share of foreign claims (banks' cross-border claims in all currencies, local claims of their foreign affiliates in foreign currency, banks' foreign affiliates' local claims in local currency) on an ultimate risk basis.

Policy Implications and Challenges

Transformation to the new regulatory regime is a necessary step to prevent another major financial crisis. Basel III will guide national regulators toward the resilience of the banking sector, but at the same time it may hurt other public policy objectives, including economic growth. Thus, it is important for regulators to understand their own domestic regulatory environments and complement Basel III with other measures to stabilize the financial markets. In other words, regulators have to shape the regulatory reform in a way that will maximize the positive impact of Basel III to prevent future financial crises and at the same time limit negative impacts that may lower economic growth. Below I summarize findings from above and discuss policy implications and challenges for the United States, Japan, and the EU.

The United States

Summary of Findings

In the United States, the non-banking financial sector (e.g., hedge funds, GSEs, money market funds) accounts for three-quarters of total financial intermediation and is still increasing in size. The sector is also recognized as one of the sources of the recent financial crisis. However, historically it has been outside the focus of authorities and subject to less regulation than banks. If regulators impose more regulations on banks by introducing Basel III and fail to effectively regulate the non-banking sector, many risky activities may shift from the banking sector to the non-banking financial sector.

Policy Implications

It is essential for U.S. regulators to enhance the regulatory framework for the non-banking financial sector to reduce the likelihood of financial crisis and to ensure the benefits of regulatory reform. Currently, discussions are under way, both nationally and internationally, to strengthen the regulation and oversight of the non-banking financial system.

The U.S. Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) in July 2010 as a major regulatory response to the recent financial crisis. The Act took some important

steps in the regulation of the non-banking financial sector,[94] although some have criticized that the Act left key components of the non-banking financial sector unregulated, including the areas of money-market mutual funds (MMMFs),[95] securitization, and repurchase transactions (repo).[96] The Act created the Financial Stability Oversight Council,[97] a council of regulators, and empowered it to identify "systemically important" non-bank financial companies and to bring such companies under the regulation of the Federal Reserve System (Federal Reserve), and to recommend heightened prudential standards for the Federal Reserve to impose on these companies.[98] While concrete rules and frameworks will be decided in the future,[99] the Council held its inaugural meeting in October 2010 and has worked to issue regulations and guidance mandated by the Dodd-Frank Act.[100]

Meanwhile, internationally, the Financial Stability Board (FSB) has discussed a possible international regulatory framework for the non-banking financial sector, based on the request of the G20 leaders.[101] It intends to draft initial recommendations by mid-2011, and develop formal recommenda-

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94 For example, hedge funds will be required to register with the SEC; most of the over-the-counter derivatives will be traded at exchanges and clearinghouses; and lenders in retail finance will be subject to consistent federal-level regulation through the new Consumer Financial Protection Bureau.

95 Note that the Regulation Q prohibition of interest-bearing demand (i.e., checking) accounts was repealed by the Dodd-Frank Act (Pub. L. 111-203 §627). From July 21, 2011, financial institutions will be allowed, but not required, to offer interest-bearing checking accounts.

96 Gorton and Metrick, "Regulating the Shadow Banking System."

97 The Council consists of ten voting members: the treasury secretary as chairman and the heads of the federal financial regulatory agencies (the Federal Reserve, the Office of the Comptroller of the Currency, the Consumer Financial Protection Bureau, the Securities and Exchange Commission, the Federal Deposit Insurance Corporation, the Commodity Futures Trading Commission, the Federal Housing Finance Agency, the National Credit Union Administration, and an independent member with insurance expertise).

98 Section 120 of the Dodd-Frank Act.

99 The Act requires regulators to create 243 rules, conduct 67 studies, and issue 22 periodic reports. See Davis Polk, "Summary of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Enacted into Law," Davis Polk & Wardwell, July 21, 2010,

100 Minutes of the Council's meetings and relevant documents are available at the U.S. Treasury website, http://www.treasury.gov/initiatives/Pages/FSOC-index.aspx.

101 At the G20 Seoul Summit in 2010, the leaders called on the FSB "to work in collaboration with other international standard setting bodies to develop recommendations to strengthen the regulation and oversight of the shadow banking system by mid-2011" (paragraph 41 of the statement).

tions to be submitted to the G20 meeting in the autumn of 2011.[102] In a background note issued in April 2011,[103] the FSB revealed possible ways of regulating the non-banking financial sector[104] and potential approaches for monitoring the sector.[105] The note also indicated four possible regulatory responses, explaining that a single regulatory approach will not be desirable because the non-banking sector includes a wide variety of activities and entities.[106] It seems that the future regulations will be a mixture of different methodologies reflecting the industry's various business models, risk characteristics, and contributions to systemic risk.

Policy Challenges

U.S. regulators will need to overcome a couple of important challenges to regulate the non-banking financial sector. First and most importantly, U.S. regulators are under strong political pressure from industry lobbyists. The industry has historically influenced policymaking decisions in the United States, and it would seek to weaken the regulatory reform to preserve the status quo. There are many studies that explain the industry's access to and influence in Congress. For example, Jordi Blanes i Vidal and others studied the so-called revolving door, whereby individuals move from serving in public office to being employed as lobbyists. They examined how lobbyists, formerly on government staff, benefited from the personal connections acquired during their public services, and found that the existence of a powerful politician to whom a lobbyist is connected is a key determinant of the revenue that the lobbyist can generate.[107] Additionally, according to Johnson and Kwak, U.S. campaign contributions from the financial sector have grown

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102 Financial Stability Board, *Progress in the Implementation of the G20 Recommendations*.

103 Financial Stability Board, *Shadow Banking*.

104 The note suggests to focus "a system of credit intermediation that involves entities and activities outside the regular banking system, and raises i) systemic risk concerns, in particular by maturity/liquidity transformation, leverage and flawed credit risk transfer, and/or ii) regulatory arbitrage concerns."

105 The note says that regulators currently monitor the shadow banking system through a combination of quantitative and qualitative information from both macro (system-wide) and micro (entity/activity-based) perspectives, but face a number of limitations (e.g., the data lacks granularity of financial sectors; the statistical definitions are different by countries).

106 The possible regulatory responses are: 1) regulating bank interaction with shadow banking entities (indirect regulation); 2) directly regulating shadow banking entities; 3) regulating the shadow banking activities; and 4) regulating through macro-prudential measures.

107 Vidal, Draca, and Fons-Rosen, "Revolving Door Lobbyists."

from $61 million in 1990 to $260 million in 2006, a more than fourfold increase.[108] As congressional elections are held every two years, there is a risk that the government will not be able to introduce effectively strong regulations for the financial sector.

Second, the institutional structure of regulatory authorities is an important factor to determine policymaking and the implementation of regulations. Since the activities and entities of the non-banking financial sector vary widely, coordination within the regulatory body is especially important. However, as the U.S. Government Accountability Office (GAO) repeatedly pointed out, "the U.S. financial regulatory system is fragmented due to complex arrangements of federal and state regulation," and the recent financial crisis reaffirmed the need to overhaul the regulatory structure.[109] Currently, almost a dozen federal regulatory agencies, numerous self-regulatory organizations, and hundreds of state financial regulatory agencies share responsibility for overseeing the financial services industry in the United States.[110] This is in contrast to Japan, where a single authority regulates the overall financial industry, including banking, securities, and insurance. Andreas Busch has observed that U.S. banking authorities often have to compete with each other for the support of the banks they are supposed to be regulating because a bank's decision about which system of regulation it will join can have a direct impact upon an agency's budget.[111] A study by economist Randall Kroszner of the Federal Reserve and financial specialist Philip Strahan similarly suggests that the competition among interest groups are the key determinants for regulatory outputs in the United States.[112] In 2008, the U.S. Treasury Department published a blueprint for reorganizing the financial regulatory structure, including mergers of the OCC and the OTS, and of the SEC and the CFTC, as well as the creation of national char-

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108 Johnson and Kwak, *13 Bankers*.

109 Hillman, *Financial Regulation*.

110 In the United States, state banks, saving banks, and credit unions are regulated by the banking department of each state; national banks are regulated by the Office of the Comptroller of Currency (OCC); bank holding companies are regulated by the Federal Reserve Banks; and thrift institutions are regulated by the Office of Thrift Supervision (OTS). In addition, those financial institutions that provide deposit insurance are also supervised by the Federal Deposit Insurance Corporation (FDIC). The securities firms and broker dealers are under the supervision of the Securities and Exchange Commission (SEC), and the commodity future markets are supervised by the Commodity Futures Trading Commission (CFTC). Insurance companies are regulated by the insurance department of each state. See Hillman, *Financial Regulation*.

111 Busch, *Banking Regulation and Globalization*, 49–54.

112 Mishkin, *Prudential Supervision: What Works and What Doesn't*.

ter for insurance companies.[113] However, the Dodd-Frank Act prescribed only the merger of the OCC and the OTS.

Japan

Summary of Findings

Japanese banks have lower capital ratios and have been less profitable than U.S. and EU banks. While this does not necessarily mean that Japanese banks will have low profitability in the future, it may take more time for them to accumulate retained earnings and satisfy the new regulatory capital ratio requirement. Another challenge is that they may face a larger cost of capital to issue new equity, as the King study showed above. If banks assume sufficiently large capital that is not raised by increasing retained earnings within the regulatory timeline, there will be a risk that banks will cut credit lending to corporations and consumers, which will result in a larger economic cost.

Policy Implications

To mitigate the costs of the regulatory reform, Japanese regulators should consider measures to safeguard against the reduction of lending. The possible measures are:

Profit enhancement. The key concern in implementing regulatory reform is the low profitability of Japanese banks. Profit is an internal source of capital as well as a necessary condition to attract equity holders. Although this is ultimately a matter of business judgment and management, policymakers are able to facilitate bank initiatives by the following measures:

Eliminating over-banking. As discussed above, Japanese banks have engaged in cutthroat interest-rate competition as they compete with one other in a relatively small domestic market. If banks can expand their operations outside Japan, such competitions will be greatly mitigated. If they move in particular more into the emerging market of Asian countries, their profitability may increase. To facilitate this, regulators may consider, for example, redefining the scope of the Basel III application. Currently, the national standard for domestic banks allows them to maintain half of the capital ratio required by the Basel standards, provided that they do not open subsidiaries or branches outside of Japan.[114] If the standard changes in a way to allow the domestic banks to operate more globally, domestic competition in Japan will be reduced, creating more chances for Japanese banks to increase their

113 Paulson, *Blueprint for a Modernized Financial Regulatory Structure*.

114 See Article 14-2 of the Banking Act, and Article 2 and 25 of the legal announcement (*kokuji*) by the Financial Services Agency based on Article 14-2 of the Banking Act.

profits.[115]

Strengthen risk management. As discussed, Japanese banks traditionally emphasize stable long-term relationships with their clients, taking more risks than returns expected under the current economic environment. Some banks have started to change their business judgment to stress risk management by establishing risk management divisions to improve the risk-return profile of their credit portfolio. Bank supervisors can encourage banks to stress risk management more, for example, by conducting a thorough examination of bank assets or by requiring a bank to reduce its non-performing loan assets to a desired level.

Reducing the role of public banks. As seen above in figure 11, the credit supply has decreased in the last decade. While public finance has played an important role in the past, it also restrains the operations of the private banking sector, affecting its profitability. Reducing the role of public banks, including the postal bank, may not be immediately achievable, particularly during the time of recession. However, it should be done during the growth phase of the economic cycle.[116]

Capital enforcement. As seen prior to the financial crisis, excessive distributions, such as dividend payouts and share buybacks, reduce earnings retention and thus slow the speed of capital enhancement. Regulatory restriction, for example, by introducing the "capital conservation buffer" of the Basel III components, can moderate such distributions for banks that have low capital ratios. It may be meaningful for the regulator to consider implementing it earlier than international timeline (2016).

Reduction of non-loan assets. Banks can raise their capital ratios without affecting lending activities by reducing non-loan assets, as described earlier. For example, Japanese banks have large stock holdings that originated in the traditional Japanese main bank system. This is mainly aimed at maintaining business relationships with their customers, but the associated market risk with the stock holdings is distinctive to banks and has often been a factor in decreasing their capital ratio.[117] Figure 14 shows various risks relative to Tier I capital in FY 2009. The market risk of stock holdings has

115 For example, if the Basel standards are applied to banks with a certain level of (foreign) assets or more, the newly defined "domestic-standard banks" can open foreign branches and subsidiaries. It should be noted that, for this purpose, it will become necessary to reduce the regulatory gaps between international-standard banks and domestic-standard banks to ensure a level playing field.

116 See, for example, Shiratori and Oyama, ""Kin'nen ni okeru hōgin no shūeki teimei no haikei to kongo no kadai," 18.

117 In Japan, unrealized losses on bank stock holdings have functioned as a linkage between a weak macro economy and bank financial conditions.

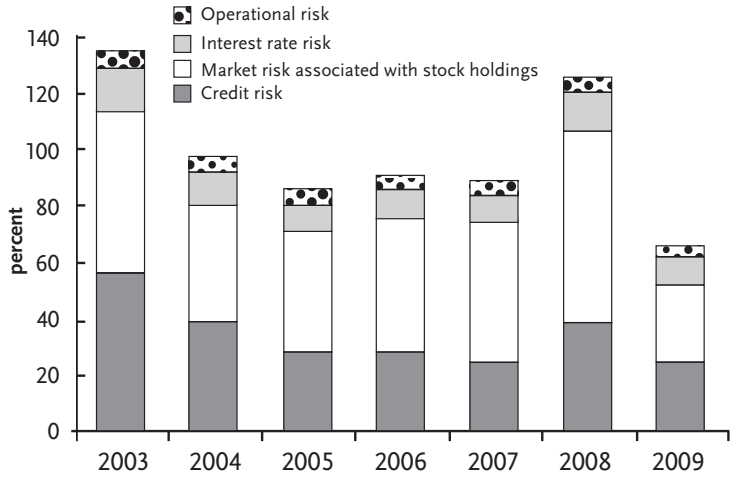

FIGURE 14 Risks Relative to Tier I Capital of Major Japanese Banks, 2003–2009
Source: Bank of Japan, *Financial System Report*, 2010.
Note: Credit risk: unexpected loss with a 99 percent confidence level Market risk associated with stock holdings: value at risk with a 99 percent confidence level and 1-year holding Interest rate risk: 100 basis point value.

accounted for a significant share of overall risks. Recently, after the Lehman shock, many banks reduced their stock holdings with the help of the government and the central bank. Thus, this effort should be continued.[118]

Policy Challenges

The challenges for Japan will be a slowing economic recovery and political pressures. The outlook for the Japanese economic recovery is not encouraging. In particular, the Great East Japan earthquake and the tsunami of March 11, 2011, have brought Japan's nascent recovery to a halt. The IMF, as shown in table 4, estimated the economic growth in Japan would be -0.7 percent in 2011 due to supply disruptions, electricity shortfalls, and weak demand. While a high degree of uncertainty exists in the outlook for the recovery, the IMF assumes that supply conditions will normalize and reconstruction spending will pick up soon, and expects that the economy will recover sharply to 2.9 percent in 2012. A weak economic recovery would lower the profitability of the corporate sector and thus the banking sector.

118 After the Lehman crisis, the Japanese Government (the Banks' Shareholdings Purchase Corporation) and the Bank of Japan purchased stocks from banks with the purpose of reducing their risks. The amount reached over 860 billion yen from February 2009 through the end of August 2010.

TABLE 4
Percent Change in GDP, 2006–2013

	2006	2007	2008	2009	2010	2011	2012	2013
United States	2.7	1.9	0.0	-2.6	2.8	2.8	2.9	2.7
Japan	2.0	2.4	-1.2	-6.3	4.0	-0.7	2.9	n/a
EU	3.5	3.2	0.7	-4.1	1.8	1.8	2.1	2.2

Source: (US, EU) International Monetary Fund, World Economic Outlook Database, 2011; (Japan) International Monetary Fund, "Concluding Statement of the IMF Article IV Consultation Mission with Japan," June 2011.
Note: IMF estimates after 2010.

If the Japanese economic recovery is delayed or remains in recession, this will invite political concerns about strengthening regulation, which would worsen corporate sector financing, especially for small and medium sized corporations. Thus, in case there is still a significant risk of large lending reduction after the safeguard measures described above, regulators may have political pressures and will be required to slow down the Basel III implementation in a way to be consistent with economic recovery. On the one hand, this will reduce the transitional cost of the regulation. On the other hand, this will bring about concerns about the level playing field across the countries (i.e., international consistency of the regulation) and may weaken the resiliency of the Japanese banking system. The important thing is to maintain the regulatory commitment to strengthen the financial system for the future. As long as bank information is appropriately disclosed, the market will strengthen the pressure on weak banks, irrespective of economic conditions and political climate.

The European Union

Summary of Findings

First, the banking sector plays an important role in the EU economy. For example, UK banks hold around four times and Irish banks hold around nine times more assets than the size of their respective GDP. The banking sector in the EU area also plays a larger role in financial intermediation.

Second, banks in the EU continue to increase cross-border transactions. At present, around 40 percent of total lending outstanding is outside their home countries. Also, since most of this cross-border lending is conducted within the EU region, impacts of lending reduction will occur not only in

TABLE 5
Foreign Exposures to PIGS, 2010 Q3 (USD billions)

Exposure to:	Bank Nationality				
	U.S.	Japan	UK	Germany	France
Portugal	47.1	2.8	33.7	48.5	45.6
Ireland	113.9	22.5	224.6	208.3	78.1
Greece	43.1	2.0	20.4	69.4	92.0
Spain	187.5	29.2	152.4	242.4	224.7
Total	391.6	56.5	431.1	568.6	440.4

Source: Bank for International Settlements, *Quarterly Review*, March 2011.

their home countries but also in other EU countries. Therefore, the cost of the regulation will be shared among all the EU countries.

Policy Implications

Considering the EU's large banking sector, the expected financial stability through regulatory reforms will significantly benefit the EU. As discussed earlier, national regulators are free to set stronger regulations than Basel III and additional requirements (e.g., higher minimum capital requirements).

Because the cost of the regulations will be shared among the EU region, it is not enough to enhance resiliency of the banking system only within individual countries; the emphasis should be placed on the resiliency of the region as a whole. This can be achieved through integrated supervision, crisis management, and resolution frameworks. Some steps in this direction are already in progress with the creation of the European Systemic Risk Board and the establishment of the European Supervisory Authorities. The success of these new institutions will depend on adequate resources, good information gathering and sharing, and focused coordination of their activities.

Policy Challenges

One of the challenges for EU countries will be the extent of the impact that surging sovereign credit risks have on the banking system. Many EU countries have accumulated large sovereign debt issuances to overcome the recent financial crisis, and the market became concerned about the sustainability of the public debt of these countries. In particular, the yields on government bonds of Portugal, Ireland, Greece, and Spain (PIGS) have significantly increased since May 2010, and even the credit default swap (CDS) of France and Germany rose by some 30 to 40 basis points during that period,

as the crisis of confidence spilled over to the wider euro area.[119] Foreign exposure to PIGS is detailed in table 5.

The rise of sovereign credit risks will impair bank balance sheets and create an adverse feedback loop through the real economy. Acting as a benchmark across the whole economy, higher government bond yields also tend to raise the cost of credit for banks, companies, and households. A rise in funding costs will squeeze bank revenues and limit capital generation. Such a re-pricing can be a significant blow to the real economy, potentially feeding back into financial instability through higher credit losses of banks. To prevent this, it is important for EU countries to assure the resiliency or sustainability of their national balance sheets, as they pursue the same for the banking system.

Another challenge comes from different economic conditions within the region. The risks that the banking sector assumes are not homogenous; vulnerabilities vary among the EU countries. For example, institutions in Greece and Ireland are currently facing the greatest balance sheet pressures, given the level of sovereign stress, concerns about loans, and high marginal wholesale funding costs. Banks in the UK have high loan losses, while German banks have low revenues to lower capital levels. This diversity may cause conflicts on the policy priority within the region. Thus, further efforts are necessary within the EU to cooperate to enhance the regional resilience of the banking sector.

119 The five-year sovereign CDS spreads are 498 basis points (bp) in Portugal, 587 bp in Ireland, 1037 bp in Greece, and 253 bp in Spain (as of March 9, 2011).

Conclusion

This paper discussed how the economic impacts of a new international standard of banking regulations vary under regional regulatory environments that are differentiated by factors such as banking sector size; the methods banks use to raise capital ratio; and the level of cross-border bank activities. The speed at which these environments experience economic recovery and changes in political momentum will also influence the impacts. The paper compared the impact differences in the United States, Japan, and the European Union, but needless to say, there would be even more variations in regulatory environments if emerging market economies, such as China, India, and Brazil, were also considered. Thus, it is important for the Basel Committee, as a global forum for regular cooperation on banking regulatory matters, to stress the importance of monitoring processes to understand and develop the way each country implements the new regulations, rather than requiring strict implementation across the board. In this respect, the policymaking work is not complete simply with the introduction of new regulations; continuous discussion and cooperation among regulators and supervisors is imperative during the process of transformation to a new regulatory regime.

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ISBN 978-193136834-6
50000>
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