3

Basel I

By 1985 nearly all the Basel Committee countries placed substantial regulatory reliance on specific capital ratio calculations that were increasingly based on a risk-weighting of assets. However, there was considerable variation in the mode and details of capital regulation among the 12 countries and little apparent interest among most supervisors in harmonizing their capital regulations. Yet within just a few years, the parallel national regulatory threads had been tied together in an international arrangement that set forth a unified approach to capital adequacy. This chapter briefly recounts the origins of the first Basel capital accord, the political economy of which provides a valuable basis for comparison with Basel II. The chapter goes on to discuss the structure, effectiveness, and shortcomings of Basel I, which together define the starting point for the Basel II process of revision. For all the continuity in the Basel Committee itself, there are substantial differences in the political circumstances at the time the two processes began and in the relative complexity of the capital rules in the two frameworks. These differences help explain why the Basel II exercise produced a flawed outcome.

Origins of the Accord

Basel I was motivated by two interacting concerns—the risk posed to the stability of the global financial system by low capital levels of internationally active banks and the competitive advantages accruing to banks subject

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to lower capital requirements.[1] These interacting concerns made the Basel I process a kind of hybrid of an international trade negotiation and a regulatory exercise. Although national competitiveness concerns became more dominant as time went on, the Basel I process never departed from the premise that capital ratios of internationally active banks needed to rise. The Basel I accord and its implementation largely fulfilled this intention.

The same 1983 legislation by which Congress mandated that capital requirements be set for US banks also prodded the Federal Reserve Board and the Treasury Department to seek an international agreement on capital standards.[2] The US banks whose travails had triggered congressional scrutiny had realized fairly quickly that they were in no position to stop legislation on capital adequacy. In the midst of the Latin American debt crisis and the necessary replenishment of International Monetary Fund resources by the United States and other industrialized countries, most members of Congress were not receptive to objections that increased capital levels would be costly and/or unnecessary for large multinational banks. They were more receptive to complaints that the stricter capital regulation contemplated by Congress would seriously disadvantage the competitive position of those banks. The banks could argue, with some justification, that explicit or implicit government safety nets in other countries allowed foreign banks to maintain lower capital levels than comparable US banks.

Of particular concern were the Japanese banks, which had grown rapidly in the preceding decade and would continue to do so during the negotiations that produced Basel I. Their pace of asset accumulation was astonishing. In 1974, the year in which the Basel Committee was created, only one of the 10 largest banks in the world (based on total assets) was Japanese (table 3.1), and in 1981 this was still the case. By 1988, however, nine of the 10 largest banks in the world were Japanese. Equally striking was the growth in the proportion of assets of the world's largest banks accounted for by Japanese institutions. In 1981 Japanese banks held just over a quarter of the total assets of the world's 20 largest banks; by 1988 the Japanese share had swelled to over 70 percent.[3]

The rise of Japanese banks had been mirrored by a decline in the position of US banks. In 1974 Bank of America, Citicorp, and Chase Manhat-

1. For chronological narratives of the origins and negotiation of Basel I, see Kapstein (1994), Norton (1995), and Reinicke (1995).

2. Specifically, §908(b)(3)(C) of the International Lending Supervision Act read: "The Chairman of the Board of Governors of the Federal Reserve System and the Secretary of the Treasury shall encourage governments, central banks, and regulatory authorities of other major banking countries to work toward maintaining and, where appropriate, strengthening the capital bases of banking institutions involved in international banking."

3. The national shares of the top 20 banks' assets were as follows, with the figure for 1981 followed by the 1988 figure in parentheses: Japan, 26.6 percent in 1981 (71 percent in 1988); France, 23.2 (12.8); United States, 18.2 (4.4); United Kingdom, 15.3 (8); Federal Republic of Germany, 8.6 (3.7); Canada, 4.2 (0); Brazil, 3.9 (0).

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Table 3.1 The world's 10 largest banks, 1974, 1981, and 1988

Year/rank	Bank	**Assets** (billions of dollars)
1974		
1	Bank of America (US)	56.7
2	Citicorp (US)	55.5
3	Chase Manhattan (US)	41.1
4	Group BNP (France)	34.7
5	Barclays (UK)	33.3
6	Crédit Lyonnais (France)	32.8
7	Deutsche Bank (Germany)	32.4
8	National Westminster (UK)	31.9
9	Dai-Ichi Kangyo (Japan)	28.9
10	Société Générale (France)	27.7
1981		
1	Bank of America (US)	115.6
2	Citicorp (US)	112.7
3	BNP (France)	106.7
4	Crédit Agricole (France)	97.8
5	Crédit Lyonnais (France)	93.7
6	Barclays (UK)	93.0
7	Société Générale (France)	87.0
8	Dai-Ichi Kangyo (Japan)	85.5
9	Deutsche Bank (Germany)	84.5
10	National Westminster (UK)	82.6
1988		
1	Dai-Ichi Kangyo (Japan)	352.5
2	Sumitomo (Japan)	334.7
3	Fuji (Japan)	327.8
4	Mitsubishi (Japan)	317.8
5	Sanwa (Japan)	307.4
6	Industrial Bank of Japan (Japan)	261.5
7	Norinchukin (Japan)	231.7
8	Crédit Agricole (France)	214.4
9	Tokai (Japan)	213.5
10	Mitsubishi Trust (Japan)	206.0

Source: The Banker, various issues.

tan were the three largest banks in the world. Although Citigroup and Bank of America remained the top two in 1981, Chase had fallen to 15th. By 1988 the three largest US banks—Citigroup, Chase, and Bank of America—were only the 11th, 39th, and 41st largest banks in the world, respectively. The US share of assets of the world's top 20 banks declined from 18.2 percent in 1981 to 4.45 percent in 1988.

In fact, this was a period of significant overall growth in the assets of all international banks, with the largest banks growing extraordinarily

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Table 3.2 Capital ratios of selected large banks, 1981 and 1988

Bank	1981 rank	Capital ratio (percent)	1988 rank	Capital ratio (percent)
Dai-Ichi Kangyo (Japan)	8	3.26	1	2.41
Sumitomo (Japan)	11	3.13	2	2.55
Fuji (Japan)	13	3.51	3	2.75
Mitsubishi (Japan)	14	3.25	4	2.58
Sanwa (Japan)	17	3.36	5	2.46
Citicorp (US)	2	3.54	11	4.84
BNP (France)	3	1.28	12	2.83
Barclays (UK)	6	4.66	14	5.57
Crédit Lyonnais (France)	5	0.95	16	3.02
National Westminster (UK)	10	5.10	17	6.11
Deutsche Bank (Germany)	9	3.10	19	3.78
Chase Manhattan (US)	15	4.77	39	4.34
Bank of America (US)	1	3.54	41	4.45

Note: The capital ratios are simple leverage ratios of capital to total assets.

Source: The Banker, various issues.

rapidly. From 1974 to 1988, the assets of the top 300 banks in the world grew nearly sevenfold, from $2.2 trillion to $15.1 trillion (de Carmoy 1990).[4] But during these 15 years the assets of the Japanese banks in this category increased by a factor of greater than 13, while the assets of the US banks represented among the top 300 did not even triple. The attention of US bankers and some policymakers was directed toward this divergence in relative growth rates and the market share changes that came along with it. Notably, the capital ratios of both Japanese and American banks had moved inversely to their market shares. Table 3.2 shows that, while the market rank of the top five Japanese banks rose from between 8th to 17th worldwide in 1981 to first through fifth in 1988, their capital ratios all declined from well over 3 percent to roughly 2½ percent. Meanwhile, the capital ratios of the largest US, French, British, and German banks all increased during this same period, as their market shares all fell.[5]

4. Given the depreciation of the dollar, the global numbers are in real terms less impressive than the nominal dollar figures. However, the growth was still substantial.

5. As discussed in more detail below, Japanese supervisors allowed banks to include in their calculations of capital most of their unrealized gains from their holdings of equities and real estate, a practice that would become a key point of contention in the Basel negotiations. If those unrealized gains are taken into account, the capital levels of the Japanese banks were calculated at around 5 percent, not much different from those of US banks when elements of capital idiosyncratic to the United States were included (IMF 1989). Of course, the concerns of German and other supervisors about the Japanese practice were borne out when the asset bubble burst and the assets held by Japanese banks declined dramatically in value.

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US concerns about Japanese banks were, in fact, very much of a piece with contemporaneous complaints about Japanese steel, autos, and semiconductor companies. Increases in market share were often attributed to unfair advantages that the Japanese firms enjoyed. In the case of banks, the most important of these advantages was the presumed support afforded them by the tight safety net provided by the Bank of Japan. But other complaints about the supposed competitive advantages of Japanese banks echo those heard with respect to other industries. *Keiretsu* relationships between banks and industrial concerns assured the former of much of the financing business for the latter as they expanded rapidly abroad.[6] The country's high savings rate—alleged by some critics to be the consequence of intentionally suppressed domestic demand—made capital cheaper in Japan than elsewhere. US banks charged that their access to the Japanese market was impaired, providing protection for domestic banks (US General Accounting Office 1988). There were even complaints that Japanese banks, in their quest for market share, had engaged in dumping in the euro markets by offering loans to customers at rates that could not be matched profitably by their European and US competitors (de Carmoy 1990, 125).

The similarities to a trade dispute reflected in these complaints extended to the US domestic political dynamic that eventually led to Basel I. Congressional responsiveness to the bankers' complaints that they would be competitively disadvantaged by higher capital requirements meant that, even as the regulatory agencies proceeded to implement the statutory mandate for stricter capital standards at home, they were under complementary pressure to extend those standards abroad (Reinicke 1995). Indeed, at least judging by hearings, letters, and other public expressions, congressional concern over 1983–88 was less focused on the safety and soundness of US banks (with consequent implications for taxpayer liability) and increasingly centered on issues of competitive equality between US and foreign banks. Only in the early 1990s, after the full impact of the savings and loan debacle had been absorbed, would congressional attention revert to prudential considerations and supervisory efficacy.

The international initiative undertaken by the US regulators unfolded in a way familiar to those who have studied or lived through trade policy problems. First, the imperative for an international initiative required the US agencies to resolve their own differences, so as to be able to take a unified position with supervisors from other countries. The ensuing process differed from the usual interagency meetings in preparation for a trade negotiation in that the banking agencies were changing domestic regulatory practice to reflect their converging views, rather than simply working out a negotiating position. But conceptually the two processes were similar.

6. Readers who lived through this period of US-Japan trade conflict may recall that the industrial companies were also said to have an unfair advantage in their access to financing. That is, both the borrower and the lender were thought to have gained unduly from the transaction.

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Second, even as the initial stage of the process was under way, the regulators prodded their foreign counterparts to begin discussions on possible international convergence. When faced with a trade-related problem that has elicited pressure from business and Congress, trade officials regularly initiate consultations to see if the problem can be resolved in a relatively low-key fashion. In March 1984, Federal Reserve Chairman Paul Volcker made a presentation at the Basel Committee seeking convergence in international capital standards. This proposal was reported to have been "greeted with a yawn," notwithstanding concerns over capital adequacy that existed in other countries (Kapstein 1994, 108). The potential for negative domestic political reaction, as well as the considerable technical difficulty that a harmonization effort would entail, made supervisors in other countries reluctant to commit to more than the work they had already commissioned to study possibilities for a common framework for measuring capital ratios.[7]

A third similarity with the dynamic of many trade issues is that, faced with a sluggish international process, US officials sought leverage with recalcitrant negotiating partners by threatening unilateral measures against firms from countries that were not sufficiently forthcoming. In the trade arena, this well-known course of action is associated with the use of Section 301 of the Trade Act of 1974 and its various offshoots, such as "Super 301" and "Special 301." The banking agencies played an analogous card, specifically directed—as so many such measures were in the 1980s—against Japan.

In late 1986, the United States and United Kingdom delayed further elaboration of their own capital adequacy standards in favor of developing a common approach. This bilateral initiative bore fruit within a matter of months, a result both of their shared strong interest in an international agreement and extensive prior interaction on capital adequacy policies between supervisors from the two countries (Reinicke 1995). Once this agreement had been concluded,[8] the two countries turned up the pressure on others by intimating that they might require these capital standards of foreign banks seeking to acquire banks, or perhaps even

7. The study is described in Committee on Banking Regulation and Supervisory Practices (1984).

8. The Federal Reserve published the US-UK agreement as part of a proposed rule making that was based in significant part on the bilateral agreement (Board of Governors of the Federal Reserve System 1987). However, it never took effect, since it had the desired consequence of prodding the Basel Committee negotiations to a successful conclusion. This bilateral gambit worried other members of the Basel Committee, who feared that it might become a "substitute . . . for internationally negotiated compromise" (Reinicke 1995, 169). In other words, it raised the prospect that the United States and United Kingdom would determine between them the proper standards for international banking regulation and then effectively impose them on the rest of the world. This, of course, is roughly what the United States and European Community did in the earlier days of trade negotiations. It also, in a way, prefigures the trade strategy of the United States in the early 1990s, when it reactivated

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doing business, in their countries.[9] Operationally, the Federal Reserve Board stated publicly that it would use a US-Japanese agreement on disclosure for banks establishing subsidiaries in host countries to require certain Japanese banks active in the United States to supply capital adequacy data in conformity with the categories and definitions in the US-UK agreement. Within a few months, and despite the opposition of many Japanese banks, the Japanese Ministry of Finance had agreed in principle to subscribe to the agreement. However, as we shall see, Japanese officials obtained an important concession from the rest of the Basel Committee as the price of their acquiescence.

With Japan on board, the United States and the United Kingdom turned their attention back to the Basel effort. The process that followed reveals a fourth set of similarities with trade negotiations, in that there was sustained attention by both the negotiators and domestic constituencies to the competitive impact of the proposed standards on *their* banks. The discussions within the Basel Committee in 1987 could decidedly be described as negotiations. The major sticking points involved disagreement over what items could be included in the definition of "capital." To some degree, the issue was a lack of congruence in definitions used by national bank regulators. Thus, for example, the meaning of loan loss reserves (or "provisions") varied among the Basel countries. In particular, French banks employed a concept of "country risk" provisions, whereby provisions might be made for potential problems with loans to a particular country, even where no loan-specific risks had been identified.[10] The Basel Committee had to sort out whether, and to what extent, these kinds of provisions should count as capital. Not surprisingly, though, these differences generally pitted a country whose banks held considerable amounts of the questionable capital component against others whose banks did not.[11] So

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the moribund Uruguay Round of multilateral negotiations in part by negotiating the North American Free Trade Agreement and enhancing the profile of the Asia Pacific Economic Cooperation forum. These steps signaled to Europe in particular that the United States believed it had other options for expanding trade—options that could leave Europe behind if the Uruguay Round failed.

9. Reinicke (1995, 169) quotes Chairman Volcker's April 1987 congressional testimony suggesting that the United States could "move in the direction" of "mandated reciprocity," as well as comments by the head of banking supervision at the Bank of England containing a subtle threat directed specifically at Japan.

10. See George Graham, "French Win Country Risk Argument: Moves Toward a Bank Capital Adequacy Standard," *Financial Times*, March 30, 1988, 30.

11. One notable exception was Germany, whose supervisors took the position that only retained profits and paid-in shareholder funds ought to count as regulatory capital. Thus, the Germans opposed most, if not all, of the additions to the definition of regulatory capital sought by others. Germany reserved its special interest pleading for the debate over which assets should be included in which risk buckets. See Haig Simonian, "Bundesbank Chafes at Cooke Report: Reactions to a Common Definition of Capital," *Financial Times*, March 15, 1988, 35.

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Japan continued to argue that most of the unrealized capital gains on bank assets should qualify as capital, while the United States argued that certain kinds of preferred stock should qualify.

Of course, these kinds of questions had to be addressed in national regulatory contexts, quite apart from Basel Committee deliberations. So, in and of itself, the consideration of such matters does not render the Basel discussions more a "trade" negotiation than a regulatory process. Questions of political economy are, in any case, as relevant for the latter as for the former. However, the Basel Committee proceedings did have some attributes that are regularly associated with trade negotiations. While the *outcome* of a trade negotiation may be cooperative in the sense that countries collectively lower their trade barriers, the negotiating process itself is not "cooperative." Domestic concern tends to be with an "us-versus-them" assessment defined by the nationality of the affected firms, rather than by the position of all affected actors. That is, it becomes a matter more of whether Japanese firms are getting advantages over US banks (or vice versa) than whether US taxpayers and the financial system generally are being adequately protected.[12]

This shift in emphasis is well illustrated by congressional attention to capital adequacy issues. As noted in chapter 2, the passage of the International Lending Supervision Act (ILSA) in 1983 was driven both by concern over the risks posed by inadequately capitalized banks and, to a somewhat lesser extent, by concern that US banks not be competitively damaged by the needed remedial measures.[13] By the time hearings on the proposed Basel Accord were held by the Banking Committee of the House of Representatives in April 1988, not a single member of the committee inquired into whether the proposal was adequate to protect the safety and soundness of the financial system. Nearly every question was focused on whether US banks (or those such as government-sponsored enterprises whose assets were held by the banks) would be competitively disadvantaged.[14]

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12. In traditional trade negotiations, there was a presumed unity of interest between consumers in each country and exporters in all other countries: Lower tariffs would redound to the benefit of both groups. Accordingly, the negotiating dynamic that may have directly reflected the concentrated influence of significant exporting interests and import-sensitive industries would also indirectly reflect the interests of consumers. When trade negotiations extend to include domestic regulatory measures such as health or safety regulations, the unity of interests between exporters and consumers can no longer be assumed. The danger in such circumstances is that the dispersed interests of consumers will then be effectively subordinated to the concentrated interests of exporting and import-sensitive industries.

13. "To a lesser extent" because ILSA required more or less immediate action by US regulators to develop capital standards and enforcement for US banks, while urging later development of an international arrangement.

14. The single exception was Representative Paul Kanjorski's (D-PA) question whether the Fed had adequate authority to instruct securities affiliates in bank holding companies to hold more capital. This issue was less about the Basel Accord itself than about changes in domestic rules governing the affiliation of banks with nonbank financial institutions.

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The importance of competitive equality concerns in prompting US and UK officials to seek an international capital adequacy arrangement thus parallels certain negotiating dynamics in trade negotiations. Yet prudential considerations also played a motivating role. Moreover, whatever the relative weights of the two factors in motivating the negotiations, it is clear that safety and soundness concerns were important once the discussions were under way. Accordingly, while the Basel Accord cannot correctly be understood solely as a cooperative exercise among national regulators, it likewise cannot accurately be characterized solely as a trade arrangement by another name.

Experience with failures of internationally active banks in the 1970s and with the more recent failure of Continental Bank in 1984 provided ample reason to be concerned with the stability of foreign banks. Linkages through the interbank lending market or the payments system meant that a foreign bank's failure could create problems for domestic banks as well. As early as 1980, the G-10 central bankers had issued a communiqué that, among other things, affirmed the importance of capital adequacy (Reinicke 1995, 160). Competitive considerations were mentioned, to be sure, but so was the fear of a financial crisis arising from deteriorating capital buffers. The annual reports of the Basel Committee in the early 1980s consistently mentioned the supervisors' concern over the erosion of bank capital levels worldwide (Committee on Banking Regulation and Supervisory Practices 1981, 1982, 1983a). Moreover, the two concerns were closely tied together in committee statements on capital adequacy. Supervisors had apparently anticipated the risks of what has since, in various contexts, become known as a "race to the bottom," whereby one country's lower regulatory standards make it more difficult for other countries to maintain rigorous but necessarily more costly standards (Reinicke 1995, 162). Thus, the competitive equality factor was understood in a more nuanced way that implicated the ability of supervisors to implement policies they considered important for safety and soundness in their own banking systems.[15]

All this, of course, took place well before the US Congress had focused on capital adequacy, much less prodded US supervisors to negotiate an international arrangement. At the end of 1982, the Basel Committee began work on a common "general framework" for measuring capital (Committee on Banking Regulation and Supervisory Practices 1984). Although the committee explicitly disclaimed an intention to harmonize substantive standards, a common set of categories and definitions would obviously facilitate comparisons of banks' relative positions and thus the ability of supervisors to evaluate the capital positions of all banks having a potential impact on their domestic financial systems. When that

15. This point is covered more thoroughly in chapter 6, which discusses the purposes of international arrangements on capital adequacy.

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measurement framework was completed and released, the committee explicitly linked the two incentives for convergence.

> The significance of this framework is that it allows members of the committee not only to monitor trends in capital ratios over time but also to coordinate objectives and to work toward reducing disparities in capital standards. In an increasingly global marketplace, both prudential and competitive considerations argue strongly for closer coordination of standards and policies. (Committee on Banking Regulation and Supervisory Practices 1987b, 5)

Similarly, in the final version of the accord itself, the committee identified the "two fundamental objectives" of the arrangement as strengthening the "soundness and stability of the international banking system" and "diminishing an existing source of competitive inequality among international banks" (Basel Committee 1988, paragraph 3).

The precise mix of motivations for US and UK officials to seek an international capital adequacy arrangement remains subject to debate. There is a plausible, though far from unassailable, case to be made that competitive equality was the more important impetus. Even so, the international initiative was motivated in the context of a strong push to raise the capital levels of domestic banks, and prudential concerns were demonstrably important during the negotiations. As it became clear that a reasonably detailed set of harmonized capital adequacy standards would emerge from the negotiations, the national banking supervisors could not avoid evaluating those nascent standards from both competitive equality and prudential perspectives. The Basel Committee had spent its first dozen years trying to improve the system for supervising internationally active banks. It would have been an abrupt turnaround for those same supervisors to have forgotten their shared prudential concerns in negotiating a capital adequacy arrangement. The national supervisors participating in the Basel Committee have obviously regarded it as an important locus (and, during the Basel II process, the *most* important locus) for developing and refining their own approach to capital regulation. If Basel ever was a venue for US and UK regulators simply to impose their preferred standards on other financial centers, it ceased to be so very quickly. Indeed, there is more than a bit of irony in the 1980s focus on the supposed competitive advantages of Japanese banks. In light of the devastation of the Japanese financial system just a few years later and the consequent impact on Japanese (and thus global) macroeconomic performance, one suspects in hindsight that more attention might better have been paid to the risks, rather than the advantages, lodged in Japanese banks in the late 1980s.

Elements of the Accord

Once negotiations had begun in earnest, the Basel Committee reached agreement relatively quickly on Basel I (another point of difference from

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most multiparty trade negotiations). In December 1987, the committee released what it termed a "consultative paper" on proposed international capital adequacy standards (Committee on Banking Regulation and Supervisory Practices 1987a). The paper elicited the predictable domestic complaints that various interests of each country's banks had been inadequately taken into account. However, like trade negotiators defending an agreement that admittedly fell short of realizing all of a country's negotiating aims, banking supervisors from the Basel Committee countries defended the proposal and warned against seeking changes that could undo the compromises struck during the negotiations. In July 1988, the committee released its final version of the accord (Basel Committee 1988), which reflected only modest changes from the December proposal.[16]

The structure of Basel I followed that of the US-UK agreement of early 1987, which in turn was based on the capital adequacy measures instituted by several countries in the early 1980s and reflected the common framework of capital measurement developed by the committee in the mid-1980s. The accord, by its own terms, addressed only credit risk, while acknowledging that banks must guard against other kinds of risk as well.[17] The basic approach was to assign each asset or off-balance-sheet item held by a bank to one of five risk categories, calculate the capital required for each asset or item based on the risk weighting, and then add all these amounts together to produce the total minimum capital to be held by the bank. The accord created two minimum capital ratios: a bank's core capital, called "tier 1" capital by the committee, which was to be at least 4 percent of risk-weighted assets, and a bank's total capital, which included so-called tier 2 components and was to be at least 8 percent of risk-weighted assets.[18]

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16. The two most important changes were to include perpetual noncumulative preferred stock within the definition of core or "tier 1" capital and to assign the same risk weighting for a bank's credit extended to all banks in member countries of the Organization for Economic Cooperation and Development (OECD), not just those in a bank's own country. These were concessions to the United States and France, respectively. There were several discrete changes in the risk-weighting categories, such as one permitting loans to owners of certain residential properties to be risk-weighted identically with similar owner-occupied housing. The changes from the consultative paper to the capital accord are described in Committee on Banking Regulation and Supervisory Practices (1988).

17. The committee pointed out that it had addressed country transfer risk as an incident of credit risk through its assignment of governments and banks into different risk categories based upon their country (Basel Committee 1988, paragraph 31).

18. While many readers are doubtless familiar with the Basel I approach, a simple example may be useful. Suppose a bank had only three assets on its balance sheet—a $1 million loan to a corporation, $2 million of US government securities, and a $500,000 mortgage on the borrower's principal residence. The corporate loan would be risk-weighted at 100 percent, the government securities at 0 percent, and the mortgage at 50 percent. Thus, the risk-weighted capital would be $1million + 0 + $250,000, for a total of $1.25 million. The bank would have to hold at least $50,000 in tier 1 capital (4 percent of $1.25 million) and $100,000 in total capital (8 percent of $1.25 million).

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Thus, the key elements of the accord were the definition of the two capital measures, the allocation of assets among the risk categories, and the conversion factors by which off-balance-sheet items were made equivalent to assets for risk-weighting purposes. Of these, the definition of capital was the most contested during the negotiations. The approach of using dual definitions of tier 1 and tier 2 capital had been developed during the common measurement framework exercise that had been completed in September 1986. At that time, the committee had agreed that shareholders' equity, retained earnings, and other disclosed reserves satisfied the essential conditions for regulatory capital—that it be paid up, freely and permanently available, able to absorb losses in the course of ongoing business, represent no fixed charge on the earnings of the bank, and rank below the claims of all creditors in the event of liquidation (Committee on Banking Regulation and Supervisory Practices 1987a, 12). The committee went on to note that some of its member countries included other items in their definitions of regulatory capital:

> This diversity in national capital definitions reflects differences in accounting practices as well as in supervisory policies. While members of the committee recognize that these additional elements, where they exist, may contribute to the underlying strength of a bank, they would not necessarily have the same view of the relative quality of each element. Nor is each of these additional constituents of capital found in every national system. As [a] result it is not possible to recommend one single, generally accepted definition of capital. (Committee on Banking Regulation and Supervisory Practices 1987a, 12–13)

Consequently, the committee adopted a tiered approach to capital measurement. Core, or tier 1, capital consisted of the universally recognized elements of shareholders' equity, retained earnings. The accord added noncumulative perpetual preferred stock to this list after persistent advocacy by the United States. Other elements—such as revaluation reserves, subordinated debt, general loan-loss reserves, and certain hybrid capital instruments—were designated as tier 2 capital. In retrospect, the most important of these accommodations to various national interests was the provision permitting up to 45 percent of a bank's unrealized gains from securities it holds to be included in tier 2 capital. This provision was considered crucial for Japanese banks, with their extensive holdings of securities that had, on paper, appreciated far beyond their purchase prices. The fact that this appreciation was the result of a massive asset bubble would become painfully evident within a short time of the framework's release.[19] The uneasiness with which these tier 2 elements were accepted by some Basel Committee members (particularly the German authorities,

19. Though Japanese government officials had originally proposed that 70 percent of the appreciated value of the securities be counted as tier 2 capital, even the 45 percent outcome was considered a major negotiating victory.

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Box 3.1 Definition of capital in Basel I

Capital Elements

Tier 1

- paid-up share capital/common stock
- disclosed reserves

Tier 2

- undisclosed reserves
- asset revaluation reserves
- general provisions/general loan-loss reserves
- hybrid (debt/equity) capital instruments
- subordinated debt

Limits and Restrictions

- total of tier 2 elements limited to a maximum of 100 percent of the total of tier 1 elements
- subordinated term debt limited to a maximum of 50 percent of tier 1 elements
- loan-loss reserves limited to a maximum of 1.25 percentage points
- asset revaluation reserves that take the form of latent gains on unrealized securities subject to a discount of 55 percent

Source: Basel Committee (1988).

who argued for the most rigorous definition of capital) is reflected in the limitations placed on them (box 3.1). The use of two separate capital ratios maintained a focus on core capital while accommodating many idiosyncrasies resulting from characteristic national capital structures, political pressures from banks, or both. Though initially created simply as a flexible metric for the common measurement framework, the dual capital definition was thus conveniently available as the basis for a substantive regulatory compromise.

The accord ratified and consolidated the movement toward risk weighting of assets that had been advancing in the preceding decade. As can be seen by examining the Basel I risk categories (box 3.2), the assignment of assets was based principally on the generic nature of the borrower, rather than the borrower's specific financial characteristics or credit history. Thus, all loans to nonbanking corporations were risk-weighted at 100 percent, regardless of whether the borrower was General

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Box 3.2 Risk-weight categories in Basel I

0 Percent

- cash
- claims on central governments and central banks denominated in national currency and funded in that currency
- other claims on OECD countries, central governments, and central banks
- claims collateralized by cash of OECD central government securities or guaranteed by OECD central governments

0, 10, 20, or 50 Percent (at National Discretion)

- claims on domestic public sector entities, excluding central governments, and loans guaranteed by securities issued by such entities[1]

20 Percent[2]

- claims on multilateral development banks and claims guaranteed or collateralized by securities issued by such banks
- claims on, or guaranteed by, banks incorporated in the OECD
- claims on, or guaranteed by, banks incorporated in countries outside the OECD with a residual maturity of up to one year
- claims on nondomestic OECD public-sector entities, excluding central government, and claims on guaranteed securities issued by such entities[1]
- cash items in process of collection

50 Percent

- loans fully secured by mortgage on residential property that is or will be occupied by the borrower or that is rented

100 Percent

- claims on the private sector
- claims on banks incorporated outside the OECD with a residual maturity of over one year
- claims on central governments outside the OECD (unless denominated and funded in national currency)
- claims on commercial companies owned by the public sector

(box continues on next page)

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Box 3.2 Risk-weight categories in Basel I *(continued)*

- premises, plant and equipment, and other fixed assets
- real estate and other investments
- capital instruments issued by other banks (unless deducted from capital)
- all other assets

1. Amended in 1994 to include claims collateralized by securities of public-sector entities other than central governments.
2. A 1998 amendment added to the 20 percent risk-weight category claims on securities firms incorporated in the Organization for Economic Cooperation and Development (OECD) subject to comparable supervisory and regulatory arrangements.

Source: Basel Committee (1988).

Electric or a startup firm with no proven cash flow. Blunt as this approach seemed even in 1988, it did embed in bank supervisory practice around the world the concept that capital adequacy depends on the riskiness of a bank's portfolio. A certain limited amount of national discretion was permitted in the assignment of assets to risk categories, notably in the case of claims on public-sector entities other than central governments.

The inclusion of off-balance-sheet items in the total assets of a bank for purposes of capital calculations is one of the enduring contributions of the accord. As noted earlier, the growth of lines of credit, letters of credit, underwriting facilities, and other contingent obligations had rendered simple capital/asset ratios an increasingly misleading measure of a bank's capital position. With banks having written so many such contingent obligations, the odds increased considerably that enough of those contingencies would become assets as to change the bank's capital ratio abruptly. The accord dealt with off-balance-sheet items in a two-step process. First, a conversion factor was used to "transform" the item into the equivalent of an asset. Essentially, the factor applied a discount that reflected the likelihood that the contingency would become an asset and create credit exposure for the bank. Thus a performance bond was assigned a factor of 50 percent (table 3.3), meaning that the face amount of the bond was reduced by 50 percent. Then, in the second step, this "asset equivalent" would be assigned to one of the risk categories based on the generic type of the customer/borrower, just as a balance-sheet asset would be. So, for example, a trade-related letter of credit in the amount of $1 million issued on behalf of a private company would be converted to $200,000 in the first step (20 percent conversion

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Table 3.3 Credit conversion factors for off-balance-sheet items in Basel I

Instrument	Credit conversion factor (percent)
1. Direct credit substitutes, e.g., general guarantees of indebtedness (including standby letters of credit serving as financial guarantees for loans and securities) and acceptances (including endorsements with the character of acceptances)	100
2. Certain transaction-related contingent items (e.g., performance bonds, bid bonds, warranties, and standby letters of credit related to particular transactions)	50
3. Short-term, self-liquidating, trade-related contingencies (such as documentary credits collateralized by the underlying shipments)	20
4. Sale and repurchase agreements and asset sales with recourse, where the credit risk remains with the bank	100
5. Forward asset purchases, forward deposits, and partly paid shares and securities, which represent commitments with certain drawdown	100
6. Note issuance facilities and revolving underwriting facilities	50
7. Other commitments (e.g., formal standby facilities and credit lines) with an original maturity of over one year	50
8. Similar commitments with an original maturity of up to one year or that can be unconditionally cancelled at any time	0

Note: The Basel Committee provided special and extensive guidelines, not reproduced here, to deal with interest rate and foreign exchange contracts and derivatives.

Source: Basel Committee (1988).

factor) and then assigned to the 100 percent risk category (private borrower) in the second step.

Amendments

The accord provided for a transition period until the end of 1992 for full implementation by national supervisors of the minimum capital requirements. Even before the transition period had run its course, the committee had made a modest revision, clarifying the characteristics of general provisions or loan-loss reserves necessary for those items to be included in tier 2 capital (Basel Committee 1991).[20] Later the committee made several

20. In the aftermath of the Latin American debt crisis, the status of loss provisions was a matter of considerable importance and dispute. One element of the 1991 amendments was intended, after a transitional period ending in 1993, to exclude provisions earmarked against country risk from the calculation of tier 2 capital.

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modest changes in the risk-weight categories.[21] It also twice amended the accord to permit broader recognition of netting in calculating the exposure associated with certain off-balance-sheet items (Basel Committee 1994c, 1995a). These latter changes were very important as a business matter to large banks with substantial involvement in trading derivatives. However, like the discrete alterations of the risk categories, they did not represent any evolution in the committee's conceptual approach to capital regulation.

In contrast, the 1996 amendment to incorporate market risk reflected an important departure in the committee's substantive approach to capital regulation, one that emerged from a process unlike that which had produced the original accord. In both respects, the market risk amendment exercise foreshadowed Basel II. As to substance, in addressing market risk, the committee extended its reach beyond credit risk for the first time. Moreover, the amendment provided for the calculation of capital charges for market risk using the internal value-at-risk (VaR) models employed by financial institutions, though only within certain parameters set by the supervisors. As to process, the committee engaged in a multiyear exercise that involved significant interaction with internationally active banks.

The Basel Committee's effort on market risk had been prompted in significant part by the European Union's work on its capital adequacy directive (CAD), which was issued in final form in March 1993. Because some member states permitted commercial banking and other financial activities to be conducted within the same firm, the CAD applied to financial institutions generally and covered market risk as well as credit risk. While market risk was obviously highly relevant for a universal or quasi-universal bank, it was also increasingly important to large US banks, for which derivatives trading in particular accounted for a growing proportion of their business. The persistent volatility of foreign exchange markets rendered this form of market risk more important for all internationally active banks. The creation of market risk capital requirements by different jurisdictions and the potential for differential requirements depending on the nature of the institution holding the security was an obvious challenge to the committee's goal of consistency in treatment of

21. These included an addition to the risk category covering claims on domestic public sector entities of claims collateralized by securities of public sector entities other than central governments (Basel Committee 1994a), an amendment to exclude from the zero-risk category any government that has rescheduled its external sovereign debt in the preceding five years (Basel Committee 1994b), and an addition to the 20 percent risk category of claims on securities firms incorporated in the OECD subject to comparable supervisory and regulatory arrangements (Basel Committee 1998). The second of these changes, though not mentioning any country, was directed at Mexico, which had joined the OECD just before the 1994–95 peso crisis.

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Table 3.4 Capital charges for debt instrument market risks in the Basel Committee 1993 proposal

Issuer	**Capital charge** (percent)
Government	0.00
Qualifying	0.25 (residual maturity of 6 months or less)
	1.00 (residual maturity of 6 to 24 months)
	1.60 (residual maturity of over 24 months)
Other	8.00

Source: Basel Committee (1993).

internationally active banks.[22] Accordingly, in April 1993 the Basel Committee released a consultative proposal to cover market risks.

Under the proposal, banks that held securities on their "trading book," as opposed to their "banking book," would substitute the capital charge generated by the market risk amendment for the capital charge generated by the original Basel credit risk calculation. The rationale for this substitution was that items on the trading book were far more likely to be sold prior to maturity.[23] The committee followed the CAD in proposing standardized measures for quantifying risks resulting from changes in price of traded debt instruments, equity, and activities involving foreign exchange.[24] For example, in calculating specific risk, debt securities were to be divided into three categories: government, "qualifying," and "other." Qualifying securities—those of higher investment quality from private issuers—were further subdivided based on the residual maturity of the instrument. Each category was to be assigned a capital charge (table 3.4). Similarly, general market risk capital charges were to be calculated based on the allocation of net open positions (long or short) into 13 different time bands ranging from less than one month to over 20 years. Each time band had an assigned risk weight. For traded debt and equity, the market risk charge was to apply in lieu of a credit risk charge.[25]

22. In fact, the committee originally tried to develop a common approach to market risk with the International Organization of Securities Commissioners in order to ensure that the capital treatment of a security did not vary depending on whether it was held by a commercial bank or an investment bank. That effort failed after the US Securities and Exchange Commission objected that the emerging proposal was too lax.

23. Furthermore, of course, some securities have no maturation date at all. Also, some securities, such as equity shares, present credit risks only in an extremely broad sense of the term.

24. Thus, the market risk capital charges apply only to instruments held in a bank's "trading book," as opposed to the "banking book," on which its loans are kept.

25. A capital charge for foreign exchange risk was to apply to assets in the banking book, as well as in the trading book.

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The committee styled its April 1993 paper as a "consultative proposal," noting that the "primary purpose" of the consultative process was "to seek market reactions to the specific methodologies" set forth in the paper (Basel Committee 1993, paragraph 7).[26] This invitation for comment was, to say the least, accepted. In the words of the US banking agencies, the 1993 proposal was "strongly criticized," particularly by US banks.[27] Much as they would later argue during the Basel II process, the banks complained that the proposed approach did not take account of the correlations and portfolio effects across instruments and markets, was inconsistent with their own risk measurement systems, and did not provide an incentive for banks to improve those systems through adoption of risk measurement innovations (Basel Committee 1995b). The large banks were essentially unanimous in urging the committee to permit the use of the so-called VaR models—proprietary risk management models that calculated the amount at risk for traded instruments to within a specified level of statistical certainty, based on past market movements. The committee responded by delaying its initiative in order to develop an internal model alternative to the standardized approach. A full two years passed between the initial proposal and the April 1995 consultative proposal that incorporated the alternative approach (Basel Committee 1995b).

Although the committee accepted the use of internal models for calculating the VaR in trade instruments, it insisted on a range of quantitative parameters, as well as qualitative standards to assure the integrity of the model and supporting risk management practices (Basel Committee 1995b). Most notably, the committee proposed to apply a "multiplication factor" of three times the VaR identified by the model. The committee justified this requirement based on the limitations of even the best models: Past market experience did not necessarily predict future market patterns. Moreover, VaR models by their own terms establish the amount that could be lost in a specified period of time with a certain degree of statistical confidence. By definition, then, larger losses would occur in a small

26. Reflecting a continuing measure of uneasiness over the legal status of committee activities, the April 1993 paper indicated that comments would be solicited by the national authorities of the Basel Committee countries and then coordinated by the committee (Basel Committee 1993, paragraph 8). This rather formalistic distinction between the committee process and the various national regulatory systems was not followed in Basel II. For each of its consultative papers as part of that exercise, the committee solicited and received comments directly and, beginning with reaction to the second consultative paper, posted all the comments it had received on the Bank for International Settlements website. This practice resembles the notice and comment administrative process required for agency rule making in the United States and other countries.

27. The banks were not assuaged by the committee's proposal, which remained in the final amendment, to create a new category of "tier 3" capital that could be used for market risk amendment purposes only. See John Gapper, "Banks Criticise New Basle Committee Plan," *Financial Times*, December 13, 1993, 23.

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number of instances, which are likely to be precisely the periods of stress that could endanger a bank's liquidity or solvency. The banks criticized the constraints on their flexibility, particularly the multiplication factor.[28] In the 1996 final version, the committee provided some additional flexibility on the quantitative parameters used in the calculations, but did not budge on the multiplication factor (Basel Committee 1996). Since the VaR for market risk was to be calculated based on trading losses anticipated over only a ten-day period, the committee obviously thought its cautious approach essential.

Thus, the market risk amendment exercise prefigured not only Basel II's substantive focus on banks' internal risk management systems and risk models but also the process by which the committee arrived at its final action. Although the original capital accord had been vetted in a consultative paper, and comments received from the banking industry, the changes between consultative paper and final framework were mostly details, and the accord was finalized within seven months. The July 1988 framework was recognizably the output of the process begun by the joint US-UK proposals based on their 1987 bilateral agreement. The market risk amendment, by contrast, was completely overhauled following the April 1993 proposal, with two years elapsing before the next consultative proposal was issued, and another nine months before the amendment was issued in January 1996. As would be the case in Basel II, this conceptual overhaul was prompted by the loud and persistent complaints of internationally active banks. Moreover, while the European Union's Capital Adequacy Directive provided a precedent for the idea of a discrete market risk measure, the path-breaking 1995 proposal was developed within the committee itself.

Assessment of Basel I

The Basel Accord, like any international economic arrangement, can be judged in two ways. One basis for evaluation is whether the arrangement has been implemented and observed by states in accordance with its terms. The other basis for evaluation is whether the arrangement, as implemented, has been effective in achieving its stated ends. Basel I appears to have been quite successfully implemented, although, as noted below, the data necessary for a thorough assessment are not readily available. With respect to the efficacy of the accord in achieving its stated ends of enhancing the soundness and stability of the international banking system and reducing competitive inequality, the picture is decidedly more mixed.

28. See Richard Lapper, "Banks Suggest Alterations to Proposed Rules," *Financial Times*, September 7, 1995, 4; and Justin Fox, "Banks Say Trading Set-Asides Tilt Field in Nonbanks' Favor," *American Banker*, September 22, 1995, 3.

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In fact, widely shared criticisms of Basel I led to the revision process that eventually yielded the new advanced internal ratings–based (A-IRB) approach in Basel II. An assessment of Basel I is particularly difficult to make with confidence at present, since the subprime crisis has yet to run its course. The crisis has revealed shortcomings of Basel I that were previously more hypothesized than observed. At the same time, though, the events of 2007 and 2008 have raised additional questions about the efficacy of the Basel II regime that replaced it.

Implementation and Compliance

Basel I provided a four-year transition period, at the end of which the minimum capital ratios were supposed to be met by internationally active banks. In assessing an arrangement such as the Basel Accord, in which states agree to certain rules or policies for regulating economic activity, the first question is whether those states have taken the requisite steps to make the rules or policies binding on private actors within their domestic legal systems. By the beginning of 1990, the necessary laws, regulations, or guidance had been enacted in Canada, France, Germany, Japan, Sweden, Switzerland, the United Kingdom, and the United States (Basel Committee 1990a). The four other G-10 countries substantially implemented the Basel rules and completed the process during 1990 in conjunction with their adoption of relevant European Community directives. The importance of implementation lay not only in the setting of specific capital ratio floors, but also in bringing into the capital ratio exercise many of the off-balance-sheet assets referred to earlier.

Timely implementation of an international arrangement is noteworthy in itself. The Basel Accord, however, was also broadly implemented by states not in the G-10, a process encouraged by the Basel Committee and facilitated by the web of relationships established by the committee with various other international groups of banking supervisors (Norton 1995, 229–33; Heyward 1992, 792–93). The committee reported in 1992 that "[v]irtually all countries outside the membership . . . with international banks of significant size have introduced, or are in the process of introducing, arrangements based on the capital agreement" (Basel Committee 1992a, 21). Like the United States and many other Basel Committee countries, numerous non-Basel countries have applied the accord's capital requirements to all their banks. The voluntary implementation of an arrangement to which these states were not party appears to have been motivated by the expectation that both capital markets and other banks would look less favorably upon banks that did not meet the Basel minimum ratios. Thus, in a development that is unusual if not unprecedented, domestic regulatory standards elaborated in a non-legally binding international arrangement among a dozen countries have been adopted

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by more than 100 countries that did not participate in the formulation of the standards.

The second implementation question is whether the regulations, once enacted, are effectively enforced. In other words, by the end of the transition period in 1992, were risk-weighted capital ratios in the banks of Basel Committee countries at least 4 percent and 8 percent for tier 1 and combined capital, respectively? The answer provided by the Basel Committee based on reports from the various national supervisors was affirmative. By December 1991, a full year before the end of the transition period, the 8 percent standard was said to have been met "with few exceptions" (Basel Committee 1992b, 20). Since one of the exceptions was Citicorp and the situation of many Japanese banks was becoming increasingly shaky, the tone of this appraisal by the committee of its own work may have been a bit on the cheery side.[29] However, the improvement in G-10 economies generally, and real estate markets in particular, helped lift capital levels in the succeeding few years.[30] The Basel Committee (1994d) reported that all internationally active banks met the required ratios by the end of the transition period. Contemporaneous reports at the start of the transition period reveal, sometimes with considerable specificity, the efforts of banks in the Basel Committee countries to improve their ratios.[31] The improvement in capital adequacy was ascribed by the committee "mainly" to increases in capital, though the rate of growth of risk assets had also declined. In the succeeding years, reported capital ratios for most banks in most countries continued to climb (Jackson et al. 1999). A review of IBCA Banking Analysis (and, since 1997, FitchIBCA) reports shows that, with occasional exceptions, the requisite capital levels have been maintained.[32]

The rise in capital ratios and the absence of serious banking problems in committee countries other than Japan are points in the accord's favor, but disentangling the impact of Basel from other factors that produced

29. Major losses incurred by Citicorp in 1991 reduced its core capital to 3.64 percent. See Alan Friedman, "Citicorps's Own Remedy Fails to Work," *Financial Times*, October 17, 1991, 27. Since tier 2 capital may not count toward total capital in an amount greater than tier 1 capital, by definition Citicorp was also below the 8 percent threshold.

30. For example, by 1993 Citicorp had improved its tier 1 ratio to 6.6 percent (IBCA Banking Analysis 1994).

31. See David Lascelles, "Banking Without Borders: The New Worldwide Capital Adequacy Rules," *Financial Times*, July 19, 1988.

32. Of the approximately 90 banks that ranked among the global top 50 in assets, only three reported tier 1 ratios falling below the mandated 4 percent level—the Shokochukin Bank in 1995, the Norinchukin Bank in 1999, and Resona Holdings, Inc. (formerly Daiwa Bank Holdings, Inc.) in 2003 and 2004. However, as explained more fully below, there are serious questions as to the accuracy of reporting by Japanese banks and regulators during this period.

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these outcomes is difficult.[33] To the degree the accord *has* led to higher capital ratios, the question would remain whether societal trade-offs between banking system stability and allocation of capital to productive uses have been made at optimal levels. Similarly, the existence of a certain level of banking system stability does not tell us whether it has been reached at significantly higher cost than might have been incurred while achieving the same stability under a different regulatory approach. There has been little empirical work on any of these issues, both because relevant data is generally not publicly accessible and, in all likelihood, because of the analytical complexity that would persist even were bank records completely available. Thus, the assessment of the accord that follows is necessarily largely suggestive. Of course, the same can be said of the assessments upon which policymakers have based their decisions to supplant Basel I.

There is little question but that the risk-adjusted capital ratios of banks in committee member countries rose following adoption of Basel I. A Working Party on Bank Capital and Behavior established to evaluate the impact of Basel I as the committee began the Basel II exercise concluded that the average capital level had risen from 9.3 percent in 1988 to 11.2 percent in 1996. Furthermore, the greatest increases were seen in countries whose banks had the lowest ratios in 1988 (Jackson et al. 1999, 6). These relatively high levels of capital have been generally maintained in the intervening years, as evidenced in particular by the reported ratios of the world's largest banks. In general, then, the accord's capital standards appear to have been enforced by supervisors in the Basel Committee countries. However, this conclusion must be qualified in three respects.

First, the reports that formed the basis for this conclusion were submitted by the supervisors, who had in many instances relied on self-reporting by banks. Although the role of independent auditors assures some check on the banks, the detail and rigor of examination practices differ widely among the Basel Committee countries. The committee has never really monitored the supervisory practices of its members. To the contrary, the supervisors have resisted outside suggestions that they do so. When, for example, the US General Accounting Office (1994) proposed a peer review process within the Basel Committee, the Federal Reserve Board expressed reluctance to share sensitive bank-specific information with other national supervisory agencies. Without that information, of course, serious review of an agency's enforcement of capital standards would be next to impossible. The Federal Reserve and the Federal Deposit Insurance Corporation (FDIC) also expressed concern that a peer review process

33. Surveying empirical research on the impact of capital regulation, Wall and Peterson (1996) concluded that the mandatory regulation prevailing in the United States since 1981 (including, of course, the early years of Basel I) was correlated with increases in bank capital levels that actually increased the buffer against failure and were not simply cosmetic. The effects of Basel I were not specifically addressed.

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might disrupt the "harmonious relationship" that had developed among the regulators. The rigor of each supervisor's enforcement of the capital standards is not directly appraised, and thus the validity of reported capital levels is potentially subject to question.

This is not to say that the Basel Committee process is a mere formal exercise. In discussing the enforcement and interpretive issues that arise in the course of supervision, the participants have an opportunity to gauge the approach and understanding of their counterparts.[34] Furthermore, supervisors who have participated in the Basel Committee are virtually unanimous in asserting that the process itself nurtures trust within the committee that both facilitates cooperation in moments of crisis and provides assurance that one's counterparts share a commitment to implementation of the capital standards. There is little reason to doubt the overall conclusion of the committee that capital ratios had been raised following adoption of the accord. But there *is* reason to wonder whether, in the context of a particular bank at a particular moment, a national supervisory agency may be entirely forthcoming with its counterparts.[35]

The absence of a reliable monitoring process may have been relatively unproblematic under Basel I. In the 15 years in which Basel I has been in effect, there is little indication that supervisors have discovered misrepresentations or systematic subversion of the capital standards by any of their Basel Committee counterparts. Even in the case of Japan—discussed more fully below—it appears that the rest of the Basel Committee was well aware of the fiction of adequate capital maintained by Japanese banking supervisors in their prolonged and ultimately misguided efforts to muddle through the banking crisis rather than take aggressive corrective action.[36] However, this institutional shortcoming in

34. Soon after publishing the Basel I Accord, the committee established a mechanism for addressing interpretive questions arising from the accord itself or from the creation of new financial instruments. This mechanism was explicitly designed to avoid significant competitive inequalities (Basel Committee 1990a). However, the discussions preceding the publication of an agreed interpretation would also give the supervisors considerable insight into the practices and thinking of their peers.

35. This reluctance need not be attributed to bad faith or parochialism. More likely a national supervisor fears that, should it divulge to its counterparts that one of its large bank's capital ratios have dipped dangerously low, the counterpart supervisors would quietly advise *their* banks to avoid large exposures to the troubled institution. The result could be a crisis for the institution in the interbank lending market that need not have arisen. Of course, this rational reluctance to divulge also means that a banking crisis might develop that could otherwise have been averted through a coordinated limitation of excessive exposures by any one bank to the troubled institution.

36. One piece of evidence for this proposition is that the Federal Reserve Board had not approved a Japanese bank application for any significant expansion in the United States for more than a year before Basel I even took effect. This posture was believed by many to be designed to force Japanese banks to charter separately capitalized bank subsidiaries in the

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the Basel process has, as will be seen in chapter 6, more profound implications for Basel II.

The second important qualification to the conclusion that the accord has been effectively enforced relates to the ways in which national authorities may have stretched the meaning of the Basel I provisions in their own supervisory activities. Notably, in the 1990s numerous countries had authorized their banks to consider as tier 1 capital a range of what the committee described as "innovative capital instruments," some of which were hybrids that offered tax deductibility on payments made by the issuer while maintaining enough equity characteristics to qualify as capital. Needless to say, the assurance provided by a given capital ratio declines considerably if the meaning of "capital" is expanded sufficiently. By 1998 some members of the Basel Committee were concerned enough to provoke a discussion and, after a period of disagreement, eventually put together a consensus on guidelines for such instruments.[37]

In one respect, this outcome shows the potential effectiveness of the Basel process in identifying deviant or questionable national practices and producing an agreed upon interpretation. On the other hand, this experience underscores both the potential for such divergent national practices and the committee's continuing failure to address comprehensively the critical issue of the definition of capital. The former concern is underscored by reports soon after the committee's statement on acceptable forms of capital that Germany would continue to permit its banks to count as tier 1 capital a hybrid instrument that, contrary to the committee's guidelines, was not permanent.[38]

A third qualification centers on Japan. The protracted financial crisis and related stagnation of the Japanese economy for over a decade serve as a cautionary tale of the potential harm to a nation from inadequate banking supervision, regulatory forbearance, and the moral hazard effects of government support for banks. The resolution costs of the crisis likely exceed 20 percent of GDP, a figure several orders of magnitude larger than that associated with any other banking crisis in a mature economy during

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United States, rather than have Japanese bank branches or offices dependent on the capitalization of the home bank. This tactic, in turn, was thought to be related to the undependability of data on the capital position of Japanese banks. See Karen Shaw, "Japan's Lax Regulation Backfiring," *American Banker*, December 22, 1992, 4.

37. See Bank for International Settlements, "Instruments Available for Inclusion in Tier 1 Capital," press release, October 27, 1998.

38. See George Graham, "German Banks Win Concession: Basle Committee Compromise Allows Germans to Continue to Raise Diluted Form of Capital," *Financial Times*, November 9, 1998, 4. It appears that Germany, having failed in its earlier efforts within the committee to maintain a narrow definition of capital, eventually decided to act upon the old adage "if you can't beat 'em, join 'em."

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the past 30 years (Basel Committee 2004d).[39] The relevance of this experience for evaluating Basel I may seem limited, insofar as the onset of the crisis was in 1992, before the accord was required to be fully implemented into national regulatory systems. Moreover, the causes of the crisis, which reached back well before Basel I had been negotiated, implicated fundamental characteristics of Japanese macroeconomic and regulatory policies—the expansion and then bursting of equity and real estate asset bubbles, the traditional "convoy" regulation of banks, de facto public guarantees of bank solvency, and the destabilizing manner in which deregulatory steps were taken.[40] Indeed, one of many lessons that might be drawn from the Japanese experience is the importance of assuring that banks *do* maintain adequate capital levels.

Although two recent studies undermine the view that Basel I had no effect on the behavior of Japanese banks,[41] it is reasonably clear that the capital standards have never been fully enforced in Japan. To some degree, this is understandable. The very existence of a serious banking crisis presumes that significant numbers of banks are in a weakened or insolvent position. Forcing capital ratios up in such circumstances could further constrict credit and thus be counterproductive to the economy as a whole.[42] Moreover, the delays in resolving the crisis, while costly to the Japanese economy, are attributable more to larger political and policy failures than to a lack of enforcement of the Basel standards as such.

Beyond these larger issues, however, the *reported* capital positions of Japanese banks during the crisis period have never reflected accurately the capital actually available as a buffer against bank losses. Of course, the provision of the accord permitting inclusion of 45 percent of a bank's unrealized capital gains as tier 2 capital is partly responsible. The rapid

39. One hopes that the aftermath of the subprime crisis will not supercede the Japanese episode on this list.

40. Useful accounts of the origins and progression of the crisis may be found in Hoshi and Kashyap (2004); Basel Committee (2004d); Calomiris and Mason (2003); Fukao (2003); Shimizu (2000); and Cargill, Hutchison, and Ito (1997).

41. However, Peek and Rosengren (2005) find in their empirical study confirmation of the generally-held impression that Japanese banks continued lending to their most troubled borrowers so that they would not have to write off their earlier loans to these same customers. Their corollary finding that banks close to required minimum capital ratios were even more likely to engage in this "evergreening" behavior suggests that those requirements had *some* influence on bank behavior. Using a panel of Japanese bank balance sheets for the period 1982–99, Montgomery (2005) finds that asset portfolios were highly sensitive to tier 1 capital requirements, as manifested in such behavior as substitution of zero-risk assets for corporate loans.

42. Unfortunately, as described by the Peek and Rosengren (2005) article discussed in the preceding footnote, Japanese banks continued lending to their most troubled borrowers, rather than directing their available lending to sounder businesses.

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decline in the Nikkei following its peak in 1989, and the consequent decline in nominal Japanese bank capital, surely confirmed the worst fears of the German authorities who had opposed permitting banks to include unrealized equity gains and other soft measures in their capital calculation. This point, however, goes more to the appropriateness of the standards in the accord—considered in the next section—than to whether it has been implemented and enforced. Of more concern for present purposes are the upward biases in Japanese bank capital figures brought about by accounting and regulatory practices that have not been sanctioned in Basel I. Three such practices have been identified by researchers.

First has been the enormous problem of bad loans. Japanese banks substantially underreserve against recognized bad loans (Fukao 2003). More importantly, throughout the prolonged crisis Japanese banks have badly underreported the number of bad loans that they held (Hoshi and Kashyap 2004). Accurate estimates of the number of bad loans and adequate provisioning against those loans would obviously reduce the amount of unimpaired capital held by the banks.

Second is the generous accounting treatment of so-called deferred tax assets, which are tax credits arising from past losses that can be used to offset future profits. Japan does not limit the use of these credits as balance-sheet assets even when—as has been the case—there is little chance of profits against which these credits can be taken during the five years until the deferred tax assets expire (Hoshi and Kashyap 2004).[43] Fukao (2003) has attempted to measure the impact of these biases on actual, as opposed to reported, capital levels. He finds that, by 1999, deferred tax assets accounted for over 15 percent of the book value of the capital of Japanese banks, a figure that rises to more than 40 percent by 2003 (Fukao 2003). Using the adjusted capital figures calculated by Fukao as the numerator in a ratio in which risk-adjusted assets of all Japanese banks is the denominator suggests that the risk-adjusted tier 1 capital levels of Japanese banks as a whole was only 2 percent.[44]

A third source of bias in capital figures is not taken into account in Fukao's calculations, which focus on tier 1 capital. In the transitional period between the conclusion of Basel I and its effective date of December 31, 1992, nonconforming banks in all the G-10 countries were forced to adjust by raising their capital ratios. Where possible, they issued new equity capital, though this became increasingly difficult as the global economy dipped into recession. Thus, most had to pursue a combination of measures

43. Hoshi and Kashyap (2004, 15) rightly question whether even limited tax-deferred assets should count as capital because they do not serve as a buffer for unexpected losses and, in their words, "they become useless exactly when the buffer is needed."

44. It should be noted that Fukao relies upon Bank of Japan reports for the risk-adjusted asset figures.

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to reduce the size of their risk-weighted assets by converting higher-risk assets into zero-risk government securities and measures to increase tier 2 capital. Issuance of subordinated debt was one means of achieving the latter aim. Japanese banks pursued both approaches (Ito and Sasaki 2002). However, much of the subordinated debt issued by Japanese banks is held by insurance companies, much of whose debt is held in turn by the banks themselves (Hoshi and Kashyap 2004). In essence, the banks lent money to the insurance companies so that the insurance companies could buy subordinated debt from the banks. This practice is a variation on "double gearing," a practice whereby the same capital is used simultaneously as a buffer against risk in two or more legal entities. The Basel Committee and other international groups of financial supervisors have consistently warned of the need to prevent double gearing.[45]

As noted earlier, regulators around the world were hardly deceived by the practices just discussed into believing that Japanese banks were adequately capitalized. With its financial system enfeebled for a decade, the question was how bad the situation was, rather than whether there was a problem. Still, the persistence of what one former Japanese bank regulator has called the "obscured capital ratios of Japanese banks" (Nakaso 2001) leaves considerable doubt that reported capital ratios would have been reliable even in better times and, accordingly, that the Basel capital standards would have been well enforced.

Effectiveness

Even substantial compliance with the rules of an international arrangement may not achieve the stated purposes of that arrangement. Conversely, depending on the circumstances, full compliance may not be necessary to make considerable progress toward achieving those ends. How, then, did the reasonably good compliance with Basel I rules fare in promoting the soundness of internationally active banks and competitive equality among banks from different nations?

Safety and Soundness of Internationally Active Banks

Establishing a causal connection between the increased capital ratios and the Basel I requirements is considerably more difficult than demonstrating that those ratios have increased. The Basel working party surveyed empirical work comparing bank behavior with and without capital require-

45. The double-gearing problem is particularly likely to arise within financial conglomerates, where there is common ownership of the two entities, thus complicating the problem of determining consolidated capital (Joint Forum on Financial Conglomerates 1999). But regulatory concerns exist whether the entities are commonly owned or simply cooperating with each other to meet their own regulatory standards.

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ments and concluded they did not "demonstrate conclusively" that the requirements led banks to hold higher capital ratios than they otherwise would have (Jackson et al. 1999, 15).[46] The problem is that it is very hard to isolate the effects of capital requirements from other variables such as market discipline, changed economic conditions, or increased supervisory scrutiny. However, it is quite plausible that capital requirements are themselves positively correlated with market discipline and enhanced supervisory oversight. The latter correlation is reasonably obvious: Supervisors may focus more intensively on capital levels if there are quantitative minimum requirements in place. The possible link between capital requirements and market discipline is more intriguing. As discussed in chapter 5, market demands on banks seeking the lowest risk premium on their borrowing may themselves be based on existing regulatory requirements. The market, that is, may be demanding some buffer above whatever regulatory requirements have been set. To the degree this explanation is valid, the increase in capital ratios may be fairly attributed—at least indirectly—to the Basel I requirements. At the least, Basel I can claim to have been an important piece of a broader set of supervisory and market changes that increased both the attention paid to capital levels and the levels themselves.

Similarly, the absence of banking crises in the Basel Committee countries between 1992 and 2007—with the important exception of the special circumstances in Japan—is consistent with the proposition that the accord has been effective but hardly proves it. The stability of the banks was particularly impressive during the two significant emerging-market financial crises and several other events that could have roiled one or more national banking systems. The contrast with the fallout from the Latin American debt crisis in the 1980s is self-evident. Of course, the record of Basel I was marred in its waning days by the severity of the subprime crisis. Although, as of this writing, outright bank failures have been limited, the stability of some US and European banks was called into serious question by their extensive recourse to special lending arrangements created by central banks in response to the deterioration of assets and consequent impairment of credit markets. Depending on events in the next few years, this crisis may in retrospect be cited as proof of the shortcomings of Basel I or, perhaps, of capital regulation more generally.

Yet even with respect to the stability of banks for that first 15 years, factors other than capital requirements made contributions; better risk management practices, including risk-based pricing of both corporate and retail lending, apparently played an important role. For example, Shuermann (2004) finds that spreads between syndicated bank loans and

46. Subsequent research calling into question the relationship between higher capital requirements and the increase in actual capital levels includes Ashcraft (2001) and Kleff and Weber (2005).

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corporate bonds narrowed by about one-third between the 1990 recession and the 2001 downturn, evidencing more risk sensitivity in pricing. Banks also made increasing use of risk-spreading devices such as credit derivatives during this period. Another factor was a relatively benign interest rate environment, with inflation largely under control for over a decade, and with aggressive action by central banks to maintain market liquidity in the face of financial dislocations in emerging markets and the popping of asset bubbles. Finally, in the 15 years after the accord took effect, there was no serious recession in the Basel Committee countries (other than in Japan) on the order of those seen in the mid-1970s and early 1980s. Thus, neither the capital requirements nor risk management improvements were tested in as stressful a set of conditions as those faced by banks 25 years ago.

As has already been suggested, many causes of the Japanese banking crisis substantially predate the implementation of Basel I. Once the equity and real estate bubbles burst, Japanese banks suffered both from the greatly reduced value of their assets and from unfavorable market conditions within which to attempt raising additional tier 1 capital. Moreover, the ensuing travails of the Japanese economy, and thus the condition of the banks, were exacerbated by an ill-advised monetary policy. Nonetheless, the Japanese banking crisis and its aftermath do not reflect well on Basel I. Most importantly, these events revealed the flaws in the rule permitting 45 percent of unrealized gains on equities held in bank portfolios to be included in tier 2 capital. The Nikkei 225 stock average declined rapidly by over 60 percent from its peak in 1989, continued to decline through 1992, stabilized for a few years, and then declined by over a quarter in 1997. Thus, an important part of the supposed capital buffer of Japanese banks was wiped away just when it was most needed. It is, of course, uncertain whether, even in 1989, Japanese banks could have raised more core capital. But the political compromise permitting recognition of these "latent reserves" removed any chance that the actual buffer against losses could be augmented while times were still relatively good.[47]

It is unrealistic to think that an international arrangement could have been invoked in the midst of a national crisis to force a country to enforce bank capital standards. By definition, perhaps, a set of standards that is essentially preventive in nature may not be optimal once a crisis hits. It is

47. There was a report at the time (Holloway 1987) that the opposition of US regulators to permitting a part of unrealized gains to be included in capital rule was "softened" by the purchase by Japanese banks of $250 million of subordinated debt from the then-troubled Bank of America. This report does not seem to have been verified by other journalists and scholars. If true, it would be an example of the dangers of trading a concession on an international rule for a short-term favor. Even if the report exaggerated the influence on US regulators, the compromise on the 45 percent rule (compromise from the original Japanese position that 70 percent of unrealized gains should count as capital) underscores the potential for suboptimal rules to emerge from negotiations—commonplace in both domestic legislation and international negotiations but still of concern.

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more reasonable to expect that other members of the Basel Committee would have at least been able to monitor and understand what the condition of internationally active Japanese banks actually was. As detailed earlier, Japanese banks and regulators used numerous questionable devices to obscure the true condition of the banks, doubtless out of the well-worn hope that regulatory forbearance would allow banks to strengthen as the economy improved. It appears that the Japanese authorities were attempting to hide the true circumstances of the banks from other regulators as well as the markets. While other regulators were, as previously noted, well aware that the balance sheets of Japanese banks did not reflect their actual condition, they had no better way than market participants of determining just what that condition was.

A final observation on the effectiveness of Basel I relates to profitability. During the period since 1992 when Basel I has been fully in place, profitability among large banks has been strong by historic standards, and has been particularly high in recent years.[48] Obviously one cannot know whether profits would have been even higher in the absence of capital requirements. Equally obviously, one cannot know how much of an impact on profits those requirements would have had in a less benign macroeconomic environment than that of recent years. Furthermore, higher bank profits as such are not necessarily desirable if they come at the expense of socially desirable safety and soundness—a possible explanation that seems increasingly stronger in light of the subprime crisis. Jackson et al. (1999) found mixed evidence from a limited number of empirical studies as to whether minimum capital requirements may have had an adverse effect on bank profitability.[49] In sum, perhaps the most one can say is that Basel I did not have a noticeable negative effect on bank profits or elicit a steady stream of complaints from bankers that it has had such an effect.

Competitive Equality

Given the importance of competitive equality concerns as an impetus for Basel I, the relative dearth of academic or policy analysis of this issue is

48. Based on the ratio of pretax profits to tier 1 capital, an article in *The Banker* calculated that each of the three most profitable years ever for the top 1,000 banks in the world has been in the last five years—2001 (17.9 percent return on capital), 2003 (17.56 percent return), and 2004 (a staggering 19.86 percent return). See Terry Baker-Self, Beata Ghavinmi, and Matthew Dickie, "The Top One Thousand World Banks," *The Banker*, July 4, 2005, 208.

49. None of the papers attempted a direct measure of the impact of capital standards on profitability. Instead, they used as surrogates market reactions either to supervisors' announcements of capital requirements applicable to banks or to equity issuance by banks in the face of capital requirements. Jackson et al. (1999, 37) also point out that, in theory at least, regulatory requirements for—and attention to—capital levels could be viewed positively by markets and thus reduce funding costs.

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somewhat surprising. Harmonized capital requirements would certainly narrow preexisting competitive advantage if other salient factors are held constant. That is, if a bank were required today to hold more capital than yesterday, but nothing else changed, then its capacity to make profitable loans or investments would have been reduced. There are, then, two questions. First, *were* other factors held constant? Increasing capital requirements may not increase a bank's cost of capital if, for example, its home government simultaneously extends its safety net in such a way as to effectively guarantee the bank's obligations to counterparties. Second, even if other factors were held roughly constant, how much competitive advantage for a nation's banks rested on divergent capital requirements relative to other possible sources of advantage? That is, how significant a narrowing can occur simply by applying convergent capital standards?

Such work as has been done to answer these questions has focused on Japan. Of course, within a few years of Basel I implementation, global concerns had shifted from the possible competitive advantage of Japanese banks to the possible collapse of the Japanese banking system. Still, studies of the period during and immediately after negotiation of Basel I suggest that the competitive leveling achievable through harmonized capital standards may have been modest. Available studies do not generally distinguish between the two questions advanced in the preceding paragraph. Thus, they do not address whether, for example, Japanese regulators enhanced safety net protections in response to Basel I or whether the prevailing levels of safety net protection were so extensive that they continued to offset some of the cost of increased capital requirements. In any case, the Japanese safety net, forbearance, and "convoy" policies are found to have limited the impact of Basel I on Japanese banks.[50]

As suggested in the second question about competitive advantage, other elements of the background business and regulatory environment may have substantial effects on the competitive position of a country's banks relative to those of other countries. Scott and Iwahara (1994) focus on the advantages from tax and accounting policies that may accrue to Japanese banks and on the possible advantages from more developed capital markets that may accrue to US banks, particularly if subordinated debt becomes more important in bank balance sheets. Zimmer and McCauley (1991) note that the capital-cost advantage of Japanese banks com-

50. Scott and Iwahara (1994) explain the relationship most convincingly. Acharya (2003) elaborates the theoretical relationship between capital requirements and what he characterizes as "forbearance" policies—meaning government policies to provide assistance to the existing management of insolvent banks, rather than close the banks or effect a major management shake-up. Wagster (1996) argues, on the basis of observed wealth effects for bank shareholders, that Basel I itself did not significantly affect Japanese bank fund-cost advantages.

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ported with the capital-cost advantage of all Japanese companies relative to their US counterparts. And, making an important point that has often been undervalued in these debates, Kane (1991) argues that the most important source of Japanese bank competitive advantage lay not in its cost of equity capital but in its cost of funds. Exclusion of foreign banks from Japan's highly regulated deposit market was thus a major source of competitive advantage.[51]

Jackson et al. (1999, 42) briefly echo Kane's conclusion in observing that "[u]ndue weight should probably not be placed on the cost of capital in terms of international competitiveness because overall cost of funding is probably even more important." They go on to point out that nonetheless, if banks in some countries need to produce higher returns on equity than those in other countries, banks in the first group will be constrained from engaging in certain low-margin activities if those activities do not carry proportionately lower capital charges. They end their survey without reaching any conclusions on this point, a reflection of the surprising circumstance that, 15 years after Basel I took effect, the degree to which it has achieved one of its principal stated purposes still cannot be gauged with precision.

Drawbacks

A final step in evaluating Basel I is to examine its drawbacks. Some of these drawbacks are obviously related to the preceding question of how successful the accord was in achieving its stated aims. Others, though, involve actual or possible problems that the Basel I rules may have created in trying to achieve its stated aims.

Macroeconomic Effects

Bank lending patterns are naturally procyclical. During economic expansions, more borrowers are likely to have strong cash flows and more borrower projects are likely to appear viable. Indeed, bank supervisors often worry that banks unwisely lower their lending standards at the peak of expansions, as both banks and their customers underestimate the risks that will appear as the business cycle turns down. Since defaults and provisioning for potentially bad loans both decline during good economic times, economic and regulatory capital requirements are less likely to constrain lending. During an economic downturn, by contrast, cash flows are pinched and fewer projects appear promising. At the same time, banks suffer higher defaults on existing loans and must make additional provisions for deteriorating assets.

51. See also Kane et al. (1991).

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Minimum capital requirements may further constrict lending because, when a bank's capital declines after a surge in loan defaults, it must either raise additional capital or reduce its assets. Since raising additional capital is likely to be most difficult and expensive when a bank is already suffering capital losses that bring it closer to the regulatory minimum, reductions in total assets (and, perhaps, corresponding reductions in deposits) will be the more probable response. If, as is likely to be the case, those reductions are substantially achieved through forbearance from new lending, then companies or other borrowers dependent on the bank for their financing needs may be adversely affected. Classes of borrowers, such as small businesses, that lack practical recourse to other sources of financing may be unable to obtain credit, even though they remain creditworthy. If this phenomenon is sufficiently widespread, the inability of economic actors to obtain financing could have a noticeable negative effect on economic activity, thereby deepening or prolonging the recession. Thus, the regulatory capital requirements may themselves be procyclical.

If capital requirements are based on risk-weighted assets, the bank has a third option: It can reallocate its mix to include greater amounts of low-risk assets such as government securities. Again, it may either sell existing assets that have high-risk ratings and use the proceeds to purchase the low-risk assets or reorient its future lending away from high risk–rated borrowers toward low risk–rated borrowers. Some commentators argued that the 1990–91 recession was exacerbated by the "credit crunch" that resulted from banks shifting their asset mix away from lending to companies (100 percent risk rating) toward government securities (0 percent risk rating) in response to the just-implemented Basel I requirements.[52]

As a theoretical matter, then, lending decisions without regard to economic or regulatory capital considerations and capital considerations themselves both appear to have a procyclical bias.[53] Isolating the magnitude of the marginal impact of capital requirements has not been easy. While there has been a fair amount of empirical work on this question, no clear answer has emerged. There is now good evidence that sectors particularly dependent on bank lending may be adversely affected by the constriction on lending that follows reductions in bank capital. Peek and Rosengren (1997, 2000) demonstrated that the commercial real estate industry in the United States was adversely affected during the 1990s by a reduction in lending from US branches of Japanese banks. The lending of the branches appears to have been sensitive to the capital conditions of the Japanese parents. Since the commercial real estate markets were in

52. The literature making this claim is reviewed in Wagster (1999).

53. Some relevant models are reviewed in Pennacchi (2005).

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the United States, which was not suffering a generalized recession through much of this period, it is easier to conclude that capital levels—rather than reduced opportunities for profitable lending—caused the contraction.[54]

The situation at the macroeconomic level is less clear. One recent paper found evidence that the Peek and Rosengren sectoral effects can be generalized (Van den Heuvel 2002). However, Jackson et al. (1999) conclude that, while some studies have demonstrated a link between pressure on capital requirements and output—particularly during Japan's travails in the 1990s—there is not convincing evidence that capital requirements have had an impact at the aggregate economy level.[55] Thus, while there is an intuitive case to be made—backed by sectoral evidence and considerable theoretical work—that capital requirements in general, and Basel I in particular, can have procyclical effects, the case does not seem sufficiently strong to constitute a serious shortcoming of Basel I. This tentative conclusion is reinforced by the fact that, as capital markets expand, dependency on bank lending alone should continue to decline. In addition, of course, the positive macroeconomic effects flowing from bank stability may outweigh such negative effects as capital requirements may entail. However, as will be seen in chapter 5, Basel II has raised anew the procyclicality issue.

Regulatory Arbitrage

Basel I has been criticized early and often for permitting, even encouraging, regulatory arbitrage. Opportunities for manifold forms of regulatory arbitrage are inherent in the Basel I approach of a limited number of "risk buckets," on the basis of which all bank assets are categorized and capital requirements are assigned. The simplicity of this structure results in many assets with dissimilar actual or "economic" risks being assigned the same risk weight. It also permits changes in the form of an asset or transaction to result in a different capital requirement being assigned to what is essentially the same risk. These features of the accord obviously raise prudential concerns that the risk weighting may diverge so substantially from the actual risks entailed by certain assets that the resulting minimum

54. Earlier work by Peek and Rosengren (1995) attempted to isolate the effects of lower capital levels by examining the behavior of New England banks during the 1990–91 recession. Assuming that these banks were subject to essentially the same exogenous shock and thus faced similarly situated borrowers, they found that banks whose capital declined the most also cut lending the most.

55. Jackson et al. (1999) review the literature examining the relationship between aggregate bank lending and GNP and find the evidence mixed. Not surprisingly, one key point of disagreement is whether reduced bank lending follows or precedes reduced output. A later study found that adoption of Basel I requirements in Latin American countries had not had a significant effect on credit growth (Barajas, Chami, and Cosimano 2005).

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capital requirements are insufficient to achieve the desired level of safety and soundness. They also create an incentive for banks to adjust their activities to exploit opportunities to lower their minimum capital levels while maintaining their return on assets or to increase their returns while keeping their capital levels constant.

The most basic forms of regulatory arbitrage arise from the fairly arbitrary nature of many of the Basel I rules. Thus, as noted earlier, the assignment of all exposures involving a particular type of counterparty to a single risk bucket means that the same risk weight of 100 percent is assigned to a loan to a large, highly profitable firm and to a loan to a startup company.[56] All else being equal, a bank will have an incentive to cherry-pick assets that yield higher returns while requiring capital set-asides similar to those for lower-yielding assets (lower-yielding because of the higher creditworthiness of the borrower, which is recognized by capital markets). This cherry-picking can be effected either through ex ante discrimination among borrowers of a certain type (corporate, sovereign, etc.) or, more probably, through sales of loans previously made to borrowers of relatively high creditworthiness. The result is a decline in the average quality of the bank's assets.

Similar in effect is the binary character of some rules. The most frequently cited example is the provision that requires capital only for loan facilities with a maturity of one year or longer. Industry lore—backed by at least anecdotal information from supervisors—holds that 364-day loan facilities became commonplace (Saidenberg and Schuermann 2004). This arbitrage can have undesirable consequences beyond its immediate impact on bank safety and soundness. For example, staff at the Bank of England found that loan data conformed to the commonsense intuition that the maturity distribution of lending to banks in higher-rated non-OECD countries was distorted by this regulatory feature (Drage and Mann 1999). Thus, Basel I may have played a modest contributory role in the 1997–98 emerging-market financial crisis.[57]

Other opportunities for regulatory arbitrage are afforded by gaps in the coverage of Basel I that create incentives for banks to engage in new kinds of activities, rather than simply to reallocate the mix of existing activities. The exemplary case is securitization—specifically, where a bank either sells assets for securitization to an entity with which it will have a continuing relationship or initiates such a relationship with an entity

56. Basel I does not explicitly assign corporate exposures to one of its risk buckets; thus they fall into the "all other" default bucket, which carries a 100 percent risk weighting (which in turn translates into a requirement that 8 percent of the amount of the exposure be set aside as regulatory capital).

57. One cause of the financial crisis was a serious maturity mismatch on the balance sheets of some Asian banks, which made short-term borrowings in foreign currencies and lent long-term in either domestic or foreign currencies.

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whose securitized assets were originated by a third party. Of course, securitization can be motivated by reasons other than regulatory arbitrage, such as extending and diversifying sources of debt financing or increasing fee-based income through multiplication of the number of loans serviced. Yet it also provides many avenues for regulatory arbitrage. A straightforward sale of assets for securitization, where there is no recourse or other retained risk by the bank, is likely to be a form of cherry-picking, since generally the bank will sell higher-quality assets for securitization and retain lower-quality loans. The more interesting situations arise where banks retain an interest in the securitized assets or otherwise seek to enhance their credit quality.

Despite its acknowledged contribution in bringing off-balance-sheet items more squarely within the ambit of capital regulation, Basel I did so only incompletely. Thus, although it required capital charges for asset sales with recourse and for direct financial guarantees, it did not address securitization head on. So, for example, a bank was able to lower its capital requirement by retaining a recourse position for only the least creditworthy tranche of a securitization because, even though there is a capital charge for that position, it may be lower than the charge that applied when all the loans were held on the bank's balance sheet. Yet the retained tranche will, in effect, bear all the credit losses associated with the original package of loans. As Jones (2000, 52–54) illustrates, this outcome may be obtained even where, as in the United States, bank regulators supplemented the Basel I rules with capital requirements designed specifically for securitization. In fact, securitization appears to present a case in which efforts to plug gaps in regulatory coverage are quickly and repeatedly overtaken by innovative arbitraging measures. Thus, for example, even if it had been feasible to change the Basel I rules to prevent the outcome just described, a bank might have been able to provide "indirect" credit enhancements to investors in the form of early amortization or fast-payout provisions, rather than providing a standard guarantee (Jackson et al. 1999, 24).[58] These devices, which obviously create risk for the bank, are not covered in Basel I and thus require no capital charge. As discussed in the next chapter, the subprime crisis tellingly exposed the flaws in Basel I, and in the quality of supervision more generally, with respect to bank securitization practices.

58. These forms of indirect credit enhancements are particularly important in connection with revolving credit arrangements such as credit card lending, where the maturity of the securitized instrument typically exceeds that of the specific loans that have been securitized. The originating bank is responsible for generating enough new loans of the requisite quality to replenish the collateral against which the securities have been issued. To provide assurance to investors that they will not be disadvantaged if the bank cannot meet this obligation, the bank may offer certain contingent provisions. Early amortization provisions force an accelerated repayment of principal to the investors; fast-payout provisions subordinate part of the bank's share of principal repayments to the investors in the securitized assets.

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A third type of regulatory arbitrage under Basel I is enabled by inconsistencies within the accord itself. Most notably, the market risk amendment of 1996 opened the door for a bank to reduce its regulatory requirements by originating and holding a position on its trading book rather than its banking book. Jackson et al. (1999, 25) observe that a three-month loan to a highly creditworthy company would carry a capital requirement of 8 percent, but three-month commercial paper issued by that same company would carry a substantially lower specific risk capital requirement under the market risk amendment.

Although regulators, academics, and policy analysts repeatedly characterize arbitrage as a major Basel I problem, there is very little empirical work that quantifies the practice or, even more importantly, that assesses the degree to which it compromises the safety and soundness of banks. This unhappy situation is doubtless due in large part to the inaccessibility of the data that would be necessary to study the phenomenon. To some degree this is because the data are proprietary to banks and neither published nor, in some instances, even reported to regulators. Surrogate measures are very crude. So, for example, Jones (2000) reports that Federal Reserve Board staff estimated the amount of nonmortgage securitization by the largest US banks to be nearly half the amount of their risk-weighted loans. The Fed staff apparently believed that these forms of securitization are "motivated heavily" by regulatory arbitrage considerations (Jackson et al. 1999, 25). Evidence for the proposition that Basel I has distorted credit markets can be found in the fact that entities falling into higher-risk Basel I categories, but with ratings from external bond rating agencies identical to those of entities in lower Basel I categories, appear to pay a premium on their borrowing (International Swaps and Derivatives Association 1998).

However, because securitization is also motivated by business reasons, one should be cautious about drawing inferences as to how much of this activity resulted from an *intention* by bank managers to engage in arbitrage. The difficulties in separating business from regulatory arbitrage motivations in assessing bank securitization practices is illustrated by Ambrose, Lacour-Little, and Sanders (2005), who conclude an empirical examination by finding evidence consistent with either capital arbitrage or reputational concerns.[59] Even if one is concerned with the effect of securitization on capital levels for a given portfolio of risk exposures, these gross numbers do not even begin to permit a calculation of how much

59. Current questions about the importance of regulatory arbitrage under a risk-weighted capital requirement regime echo earlier inquiries into whether banks engaged in increasing amounts of off-balance-sheet activity in order to arbitrage capital requirements such as leverage ratios, where balance sheet assets were the denominator in a capital ratio. Jagtiani, Saunders, and Udell (1995) review the literature and report on new empirical work, on the basis of which they conclude that changes in capital regulation had no consistent effect on banks' adoption of off-balance-sheet products.

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those levels have been reduced. Furthermore, Jones (2000) suggests that securitization and certain other regulatory arbitrage devices may actually be desirable, because the Basel I rules themselves arguably assign many of the assets appropriate for these transactions to a bucket with too high a risk weighting.[60] Of course, this suggestion underscores the degree to which current capital requirements may rest upon risk weightings that deviate from the actual risk entailed by a bank's operations—hardly a ringing endorsement of any regulatory system and a prelude to the shortcoming of Basel I addressed in the next section.

Divergence Between Risk and Capital Regulation

The most trenchant criticism of Basel I is not that it has permitted capital levels that are too low for the actual risk to which a bank is exposed but that its metric is only obliquely connected to that risk. Basel I may require capital levels that are higher or lower than warranted by the credit risks a bank faces, at least where a large portion of the bank's business involves securitization, collateralized debt obligations, credit risk derivatives, and other innovative financial instruments. After summarizing regulatory arbitrage practice under Basel I, former Federal Reserve Board Vice Chairman Roger Ferguson commented that it had "greatly reduced the usefulness of regulatory capital ratios at the largest banks and provides little useful information to the public or the supervisors."[61] This theme of the disutility of Basel I as a supervisory tool has been increasingly emphasized by US regulators, particularly as criticism of Basel II has mounted.[62] As with so many other features of Basel I, the subprime crisis has underscored this problem.

A related criticism of Basel I is that it discourages banks from adopting sophisticated but costly risk management systems because there is no regulatory payoff (Saidenberg and Schuermann 2004). This notion perhaps reflected the belief of banks, discussed in chapter 5, that in exchange for the investments necessary to make them compliant with the Basel II A-IRB approach, they would reap benefits in the form of reduced minimum capital requirements. While the cost of compliance with risk

60. Mingo (2000) regards regulatory arbitrage as a lose-lose proposition because of the transaction costs required of banks to set up the transactions that permit the reduction in capital requirements.

61. Roger W. Ferguson, Jr., testimony before the Subcommittee on Financial Institutions and Consumer Credit of the Committee on Financial Services, US House of Representatives, June 19, 2003.

62. For example, in response to questions at a November 2005 Senate Banking Committee hearing on Basel II, Comptroller of the Currency John Dugan repeatedly underscored the importance of, as he put it in one answer, going "in a direction to get our arms around the risks that our largest, most complex banks are likely to take in the coming years." This theme is also elaborated in Mingo (2000).

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management systems should always be relevant in deciding on regulatory requirements, an implicit regulatory promise to reduce capital requirements *before* conclusions can be reached as to the actual risk profiles of the banks seems at best premature.

There is no doubt that, optimally, a capital regulatory system would prompt banks to adopt advanced risk management techniques, at least up to the point where the incremental cost of those techniques exceeded the anticipated benefits in enhanced bank stability. However, it is by no means clear how much of a regulatory incentive is necessary to bring about extensive bank investment in risk management techniques. The interest of management and shareholders in maintaining the bank's value should, at least for currently healthy banks, serve as an important incentive. One recent study has concluded that the significantly improved performance of US banks during the 2001 recession, compared with the 1990–91 recession, is in significant part due to the integration of improved risk management tools into bank business decisions.[63]

Conclusion

In purely institutional terms, Basel I was an impressive accomplishment. The bank supervisors of a dozen key financial nations agreed to what seemed, at least in 1988, a fairly detailed set of harmonized rules on capital adequacy. With the important exception of Japan—the sources of whose banking and macroeconomic problems predated the accord—these rules have been quite faithfully enforced, not only in the Basel Committee countries but in nearly a hundred others. Again with the exception of Japan, the Basel Committee country banks were generally stable and profitable in the intervening years, despite several global financial upheavals. While Basel I can hardly claim all, or even most, of the credit for this happy circumstance, the general supervisory emphasis of the last 15 years on capital adequacy has surely played a part. However, when the history of the subprime crisis is finally written, it will surely detract from Basel I's accomplishments to a greater or lesser degree.

Because of this success, Basel I has been touted by some international law and international relations scholars as the exemplary case of trans-

63. Schuermann (2004) finds evidence for the improved ability of banks to price risk in, among other things, the shrinking relative spreads of loans to corporate bonds in the syndicated loan market and the steeper pricing schedules in retail and small-business lending. Ironically, Schuermann is coauthor of the earlier-cited paper suggesting that banks lacked regulatory incentive to adopt sophisticated risk management systems (Saidenberg and Schuermann 2004). While the two papers are not inconsistent—since a different capital regulatory regime can draw forth even more investment in risk regulation—the former suggests that there are important business motivations for banks to make such investments.

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national regulatory cooperation. Yet the history recounted in this chapter should inject a note of caution into the story of Basel I so enthusiastically told by these scholars. Behind that history lay a politically based push for higher capital levels—first in the United States and the United Kingdom for largely domestic regulatory reasons and later in the rest of the G-10 as a result of US and UK concerns about competitive equality. Even in the relatively brief negotiating period, national competitive considerations played an increasing role, in many instances at the apparent expense of sound bank regulatory policy. However, sufficient momentum remained from the original push to produce a result that raised capital ratios. Basel II, as we shall see, did not begin with this kind of momentum behind it.

A second reason for caution in extrapolating the success of Basel I to the Basel II exercise is that that success may have been due in no small part to the relative simplicity of the capital rules negotiated in 1988. The shortcomings of the original accord were, and are, real. In a sense, the strongest case against Basel I is that it provides a decreasingly useful supervisory window on bank operations and soundness—both for supervisors and for the banks themselves. However, the fact that Basel I has drawbacks as a comprehensive scheme of domestic capital regulation does not mean that a highly complex international arrangement is the best way to improve each country's domestic regulatory paradigm. As the next chapter shows, the differences of political economy and institutional competence between the process and substance of Basel I and that of Basel II raise serious doubts whether the latter is on net a benign development.

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