2

The Players, Their Supervisors, and Moral Hazard

Our review of costs and benefits in the previous chapter highlighted short-term bank debt as a particularly troublesome component of international capital flows. In this chapter, our focus turns to the major suppliers of capital, concentrated in the G-10 countries. Much of the literature on international financial architecture implicitly assumes that the G-10 financial institutions and their supervisors have their monitoring and incentive systems "about right" and that crisis conditions lie on the demand side. Is this assumption correct? If not, more problems lie ahead —even if the IMF and emerging economies, working together, dramatically reform the demand side of international capital. As we argued, potential capital flows to and from emerging-market economies, already large, are likely to grow because of various strong incentives. Larger flows and stocks of international capital will bring benefits, but they also will create more worries about stability.

In this chapter, we examine the basis for the assumption that all is well on the supply side of world capital markets. We argue that distortions contribute to the instability of the cross-border bank lending demonstrated in table 1.2—and could in the future affect portfolio flows. The significant issue is the moral hazard that arises from the special status of banks in national financial systems. Although governments and supervisors have offset the safety nets they provide to banks—through legislative and institutional changes discussed below—constant innovation in financial markets creates opportunities to circumvent regulatory efforts. More can and should be done to achieve a better alignment between market forces and incentives for managers and shareholders of banks—and for their supervisors.

We argue in this chapter that the G-10 supervisors can improve the "plumbing" of the international financial architecture. In a coordinated way, the G-10 has a large role to play both in preventing and managing future crises. We first distill a few supervisory lessons from the Asian and Russian crises. Then we describe the private-market players, paying particular attention to the special role of banks in the international financial system and why moral hazard is such a persistent and subtle problem. We then analyze key issues in offsetting moral hazard through prudential supervision, beginning with national comparisons and ending with the G-10's international system through the Bank for International Settlements, the International Organization of Securities Commissions (IOSCO), and similar institutions in such related areas as insurance and accounting.

Lessons from Asia and Russia

The main features of the 1997-98 episodes are well known. Less understood, however, is the flavor of financial-institution involvement. The crisis in East Asia was distinct from the crisis in Russia. The Asian crisis was more gradual, beginning in mid-1997 with the collapse of the Thai baht, followed by banking and economic shocks that spread to Thailand's major regional trading partners and then to South Korea. As the crisis unfolded, Asians in the affected countries moved tens of billions of dollars offshore—using the facilities of G-10 banks. The bulk of the debt contracts that were at risk in Asia were short-term, nontraded, interbank loans.[1] Most of these loans originated with Japanese and European banks (table 1.7).

By contrast, the Russian crisis was a unilateral default ("restructuring") of sovereign debt—a tradable financial instrument. This instrument had been widely used as collateral to obtain credit from G-10 banks. Hence the default "immediately triggered the unwinding of leveraged positions by large, internationally active financial institutions."[2] Much of the financing for Russian and other emerging-market sovereign debt had been arranged and leveraged by US banks.

Although the shocks and financial institutions differed from crisis to crisis, the use of debt instruments was a common element. In the run-up to a crisis, financial houses extended credit to increasingly risky borrowers, and paid higher prices for emerging-market debt instruments. As knowledgeable players took more risks, less knowledgeable players followed them. Many firms borrowed heavily to leverage their bets. Leverage was easy, with hedge funds borrowing from banks and banks

1. See IMF (1998).

2. IMF (1998, 50).

borrowing from each other, using emerging-market debt instruments as collateral.

Russia became the poster country of high-risk finance. In 1996, Russian treasury bills (GKOs) were sensibly regarded as time bombs; no bank would accept them as collateral for a loan. But gradually the view took hold in Wall Street that, for political reasons, Russia had become too big to fail. Banks relented and began to accept GKOs as security, but at half their market value. By early 1998, some hedge funds were borrowing up to 95 percent of these assets as collateral.[3] Banks also lent to each other on similar terms.

When the IMF refused a bailout to prevent default on the GKOs, widespread surprise turned to panic. Everyone headed for the exits. Losses were huge because many firms had been doing the same thing, using the same risk-management models. All those positions could not be unwound simultaneously. Liquidity dried up. For a period, no one would lend, even to strong North American corporate accounts. The final chapter was the near-collapse of Long Term Capital Management, a huge hedge fund run by brilliant managers. The combination of unexpected events, LTCM's risk exposure, and high leverage contributed to its problems. The size, persistence, and pervasiveness of the widening spreads confounded its risk-management models, producing huge losses. After LTCM was refinanced by its major counterparties in September 1998, its weaknesses became clear. They included its risk-management systems, the inadequacy of its capital base, and most important the failure of market discipline. LTCM's counterparties did not understand the hedge fund's risk profile when they granted credit on generous terms, mainly on the basis of its managers' reputations (FSF 2000b).

The Asian and Russian episodes illustrate key issues on the supply side that deserve more attention: bias in the incentive systems of G-10 countries toward the use of debt, and the significant role played by the large international financial institutions, particularly banks. We do not dispute the importance of reforms (including better exchange rate systems) urged on the finance ministries, central banks, and borrowers in emerging economies. Some of the criticisms aimed at the IMF are also warranted. But we think the G-10 market players and financial supervisors deserve far more scrutiny.

The top financial players constantly innovate as new technologies make financial engineering possible. By the same token, they quickly respond to any shifts in the incentive structure imposed through official regulation. The activities of the top players are beyond the reach of the IMF. They must not, however, be beyond the reach of G-10 financial supervisors, particularly the bank and securities-market regulators.

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3. See Risk Management: Too Clever by Half, *The Economist*, 14 November 1998, 82-85.

The Market Players

As the tables in chapter 1 illustrate, there are three main types of private-capital flows: bank loans and deposits, other portfolio investment, and foreign direct investment. Each type is associated with particular institutions—commercial banks, other financial institutions, and nonfinancial firms. In this section, we describe the size and nationality of the large players.

Commercial Banks

Table 2.1 lists the 50 largest commercial banks by market capitalization as of October 2000. Market capitalization, rather than sheer asset size, probably better measures a bank's ability to move funds from one country or sector to another.[4]

The large continental European banks (those in the euro zone plus Switzerland) in 1999 had market capital of about $524 billion and assets of approximately $6.4 trillion. When figures for UK commercial banks are added in, European market capitalization rises to about $850 billion and assets to about $8.6 trillion. Europe is a banking powerhouse. Indeed, the European role is so crucial that no approach to the regulation of international lending can survive without European support.

The Maastricht Treaty did not make Europe a single entity for banking supervision. The European Central Bank is finding its way in exchange rate and monetary policy. For the foreseeable future, national regulators will retain control over supervisory matters. Changes in the fabric of international understandings over bank supervision will require consensus among the European powers.

In market capitalization, at $850 billion the large US banks are about the same as their European counterparts; but in asset size, they are a distant second to the Europeans, at $3.8 trillion. The large Japanese commercial banks follow on market capitalization, at $300 billion, but are second to the Europeans with assets of $6.7 trillion.

Commercial-banking power is clearly concentrated in Europe, the United States, and Japan. Moreover, banks based in the G-10 plus Spain account for 90 percent of the market capitalization and assets of the top 50 commercial banks in the world. As table 2.2 shows, banks based in the G-10 countries plus Spain account for about 92 percent of the assets of all commercial banks located in BIS reporting countries, about 80 percent of the external assets of these banks, and about 72 percent of claims on

4. Several banks in China and Europe rank among the top 50 in terms of asset size, but poor-quality loans sharply diminish their market capitalization-–and their ability to move money from country to country.

Table 2.1 World's largest 50 commercial banks by market capitalization, October 2000 (billions of dollars)

Global rank	Banks	Market capitalizaton[a] Sept. 1999	Oct. 2000	National rank[c]	Total assets, Dec. 1999	Net income, Dec. 1999	Shareholder equity,[b] Dec. 1999
Continental Europe							
8	ING Bank	46	66	1	351	1.7	14
12	UBS	58	55	2	614	3.9	22
13	Crédit Suisse Group	50	54	3	452	3.3	22
15	Deutsche Bank	36	48	4	843	2.6	23
17	Banco Santander Central Hispano	33	45	5	258	2.2	17
19	BNP Paribas		43	6	702	1.7	22
	Banque Nationale de Paris	26					
	Paribas	16					
21	ABN AMRO	29	34	7	460	2.6	13
25	Banco Bilbao Vizcaya Argentaria	25	28	8	240	2.2	18
26	UniCredito Italiano	21	26	9	170	1.3	10
30	Société Générale	19	22	10	408	2.4	12
29	HypoVereinsbank	20	22[d]	11	505	0.4	14
32	Dresdner Bank	21	21	12	398	1.1	12
43	San Paolo IMI	16	17[d]	13	141	1.1	8
45	Fortis Bank	34	16	14	330	1.2	9
49	Commerzbank	17	14	15	374	0.9	12
49	KBC Bank	13	14[d]	16	147	0.7	6
Total for Continental Europe		482	524[d]		6,393	29.1	234
Japan							
3	Mizuho Holdings, Inc.		115	1			51[e]
3	Dai-Ichi Kangyo Bank[f]	39			463	–3.8	20
3	Industrial Bank of Japan[f]	32			390	–1.5	13
3	Fuji Bank[f]	42			489	–3.6	18
7	Sumitomo Sakura (tentative)		68	2	56[e]		
	Sumitomo Bank[g]	47			464	–4.8	15
	Sakura Bank[i]	31			414	–4.0	18
10	Bank of Tokyo Mitsubishi	72	56	3	664	–0.7	23
11	UFJ Holdings, Inc.		55[d]	4			36[e]
	Sanwa Bank[h]	39			425	–4.0	18
	Tokai Bank[h]	16			269	–2.4	13
	Toyo Trust & Banking[h]	n.a.			67	–1.3	5
40	Asahi Bank	20	18[d]	5	247	–2.1	12
49	Mitsubishi Trust & Banking[i]	16	14[d]	6	149	–1.4	7
50	Sumitomo Trust & Banking	11	10[d]	7	127	–1.2	6
Total for Japan		364	336[e]		6,472	–48.1	260

(*table continues next page*)

Table 2.1 World's largest 50 commercial banks by market capitalization, October 2000 (billions of dollars) (*continued*)

Global rank	Banks	Market capitalizaton[a] Sept. 1999	Oct. 2000	National rank[c]	Total assets, Dec. 1999	Net income, Dec. 1999	Shareholder equity,[b] Dec. 1999
United Kingdom							
2	HSBC Holdings	97	122	1	569	5.4	37
9	Royal Bank of Scotland	19	58[d]	2	146	1.4	7
	NatWest[j]	39	n.a.	n.a.	292	n.a.	14
14	Lloyds TSB	68	52	3	285	4.1	14
18	Barclays	44	44	4	402	2.8	14
35	Abbey National	25	19	5	292	2.0	8
46	Standard Chartered	15	15[d]	6	88	0.6	6
46	Bank of Scotland	15	15[d]	7	116	1.0	6
Total for United Kingdom		322	324[d]		2,191	17.3	106
United States							
1	Citigroup	149	237	1	717	9.9	50
4	J.P. Morgan Chase & Co.		83	2			35[e]
	Chase Manhattan[k]	63	n.a.	n.a.	406	5.4	24
	J.P. Morgan[k]	20	n.a.	n.a.	261	2.1	11
5	Bank of America	96	79	3	633	7.9	44
6	Wells Fargo & Company	65	78	4	218	3.7	22
16	Bank of New York Company	25	46	5	75	1.7	5
20	Bank One	41	42	6	269	3.5	20
22	Fleet Boston Financial	34	34	7	191	2.0	15
23	MBNA	18	30	8	31	1.0	4
24	First Union	34	30	9	253	3.2	17
27	Fifth Third Bancorp	17	24	10	42	0.7	4
27	Mellon Financial	17	24	11	48	1.0	4
33	State Street	n.a.	20	12	61	0.6	3
35	PNC Bank	16	19	13	75	1.3	6
35	Northern Trust	n.a.	19	14	29	0.4	2
35	Firstar	25	19	15	73	0.9	6
40	U.S. Bancorp	22	18	16	82	1.5	8
46	SunTrust Banks	21	15	17	95	1.3	8
50	National City	16	13	18	87	1.4	6
50	Wachovia	16	11	19	67	1.0	6
50	KeyCorp	12	11	20	83	1.1	6
Total for United States		707	850		3,796	51.7	271
Other							
31	National Australia Bank	2	21	1	166	1.8	12
34	Hang Seng Bank Ltd	20	20[d]	2	n.a.	n.a.	n.a.
35	Royal Bank of Canada	13	19	3	184	1.2	9
40	Commonwealth Bank of Australia	14	18[d]	4	91	0.9	5
43	Toronto Dominion Bank	12	17	5	146	2.0	8
50	Westpac Banking Corp	12	13	6	92	1.0	6
50	Development Bank of Singapore	12	13[d]	7	64	0.6	6
Total for other		105	121[d]		742	7.6	46

Table 2.1 (*continued*)

	Market capitalizaton[a]			Total assets,	Net income,	Shareholder equity,[b]
	Sept. 1999	Oct. 2000	National rank[c]	Dec. 1999	Dec. 1999	Dec. 1999
Total for largest 50	1,980	2,155		19,594	58	917
Total for G-10	1,900	2,070		19,182	53	888

n.a. = not available/not applicable
G-10 = Group of Ten countries; see note to table 1.1.

a. Market capitalization is defined as the number of ordinary shares currently in circulation multiplied by the current share price. Market capitalization as of October 2000 is presented for the banks that had a market capitalization higher than $11 billion as of September 1999.
b. Shareholder equity is defined as the sum of issued common stock, capital surplus or premium, various reserves, and retained earnings. Shareholder equity includes group equity attributable to consolidated minority interests.
c. Rankings within the country or region.
d. Estimates based on the available rates of change from September 1999 to October 2000. The market capitalization and shareholder equity figures represent combined estimate for the merged banks.
e. Total for the merged banks.
f. Merged in September 2000
g. Merged in April 2001.
h. Will merge in April 2002.
i. Will merge with Nippon Trust and Tokyo Trust in October 2001.
j. NatWest Bank merged with the Royal Bank of Scotland in March 2000.
k. Announced a merger in September 2000.

Sources: Euromoney, *The Bank Atlas,* 2000, http://www.euromoney.com; American Banker, *The Top 100 World Financial Companies, Q3 1999*, http://www.americanbanker.com; Yahoo! Finance, *Company Profiles* finance.yahoo.com, Bloomberg Financials, http://www.bloomberg.com.

developing countries. In turn, the claims on developing countries represent about 4 percent of the assets of G-10 and Spanish commercial banks.

Portfolio Investors

Three groups of financial institutions dominate the flow of portfolio capital: investment banks, wealth managers, and insurance companies. Table 2.3 lists nine large investment banks, all based in New York with offices in London and other financial centers. In 1998, these nine firms had a combined market capitalization in excess of $130 billion, and controlled assets in excess of $1.8 trillion.

Investment banks act as guardians to the securities markets: Nearly all public and private shares, bonds, and asset-backed securities are brought to market by an investment bank. Fulfilling the same function, they are expanding the securities markets of emerging economies. They also act as the pilots of privatization, mergers, and takeovers—now a core feature of

Table 2.2 Total assets and external assets of all commercial banks, June 2000 (billions of dollars)

Country	Total assets[a]	External assets: Amount	External assets: Share of total assets (percent)	Claims on developing countries[b]: Amount	Claims on developing countries[b]: Share of total assets (percent)
Austria	423	91	22	33	8
Bahamas	316	244	77	61[c]	19
Bahrain	100	92	92	46[c]	46
Belgium	806	309	38	26	3
Canada	720	98	14	31	4
Denmark	244	58	24	6	2
Finland	121	31	25	4	3
France	2,486	607	24	135	5
Germany	4,535	901	20	240	5
Ireland	423	160	38	2	0
Italy	1,345	191	14	47	4
Japan	8,460	1,199	14	258	3
Luxembourg	821	495	60	124[c]	15
Netherlands	1,080	296	27	67	6
Norway	157	14	9	3	3
Singapore	574	405	70	202[c]	35
Spain	889	124	14	57	6
Sweden	348	67	19	12	2
Switzerland	1,632	709	43	177[c]	11
United Kingdom	5,802	1,990	34	138	2
United States	6,223	889	14	144	2
Total for all BIS reporting countries	37,506	8,968	24	1,813	5
Total for G-10	34,326	7,378	21	1,331	4

BIS = Bank for International Settlements.
G-10 = Group of Ten countries; see note to table 1.1.

a. Total assets are calculated as banking institutions (deposit institutions) reserve, claims on the public sector, claims on the private sector (lines 20, 21, 22 from IFS), plus external assets. Figures are converted into US dollars using the market exchange rate at the end of June 2000.

b. Developing countries are countries other than Andorra, Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Iceland, Ireland, Italy, Japan, Liechtenstein, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States, the Vatican City State, and the former Yugoslavia.

c. These countries do not disclose their claims on developing countries. Such claims are arbitrarily (and generously) estimated at half the external assets of commercial banks in Bahrain and Singapore and a quarter of the external assets of banks in the Bahamas, Luxembourg, and Switzerland.

Sources: IMF, *International Financial Statistics (IFS),* November 2000; Bank for International Settlements; *BIS Quarterly Review,* November 2000, http://www.bis.org.

Table 2.3 Large investment banks, 1998 (billions of dollars)

	Revenue	Assets	Market capitalization[a]
Merrill Lynch[b] (United States)	36	300	25
Morgan Stanley Dean Witter[b] (United States)	31	318	50[c]
Goldman Sachs (United States)	22[d]	217[e]	29[c]
Lehman Brothers Holdings[b] (United States)	20	154	10[c]
Salomon Smith Barney[f] (United States)	8	211	n.a.
Credit Suisse First Boston[g] (United States/ Switzerland)	7	280	n.a.
Paine Webber[h] (United States)	7	54	6[i]
Bear Stearns[j] (United States)	8	154	5[i]
Donaldson, Lufkin, & Jenrette[k] (United States)	5	72	7[i]
Total	144	1,760	132 plus
Total for G-10	144	1,760	132 plus

n.a. = not available (subsidiaries of large holding companies: Citigroup and Crédit Suisse Group, respectively; individual market capitalization is not available).
G-10 = Group of Ten countries; see note to table 1.1.

a. Market capitalization is calculated by multiplying the total number of shares by the share price at the company's fiscal year-end.
b. *Source: Fortune* Global 500, 1999. Data shown are for the fiscal year ended on or before 31 March 1999. Assets shown are those at the company's fiscal year-end, http://www.pathfinder.com/fortune/global500/index.html.
c. Figures, as of September 1999, are from *American Banker*, http://www.americanbanker.com/BankRankings.
d. *Source:* 1998 *Goldman Sachs Annual Review.* Assets as of November 1998, http://www.gs.com/about/annual/1998/4_fs/index.html.
e. *Source: Financial Times Company Financials.* Revenue as of 27 November 1998, http://www.globalarchive.ft.com/cb/cb_search.htm.
f. *Source:* 1998 *Citigroup Annual Report,* 20. Revenue figures for year ending 31 December 1998. Asset figures as of 31 December 1998, http://www.citigroup.com/citigroup/fin/data/c1998ar2.pdf.
g. Source: 1998/1999 *Crédit Suisse Group Annual Report*, 23, http://www.csg.ch/csg_annual_report_98/download/csg_ar98_p1_en.pdf.
h. *Source:* 1998 *Paine Webber Annual Report,* 34-35, http://www.painewebber.com/annual98/graphics/fininfo/index.htm.
i. Individual figures are obtained from Yahoo! The time for valuations is as follows: Bear Stearns, December 1999; Lehman Brothers, November 1999; Paine Webber and Donaldson, Lufkin & Jenrette, September 1999.
j. *Source:* 1999 *Bear Stearns Annual Report,* 55-56. Figures are for fiscal year ending 30 June 1998, http://www.bearstearns.com/corporate/investor/index.htm.
k. *Source:* 1999 *Donaldson, Lufkin, and Jenrette Annual Report,* "Financial Highlights," http://www.dlj.com/pdf/DLJ98_1.pdf.

global capitalism. In addition to their underwriting role, investment banks earn substantial profits from trading securities.

Wealth-management firms are the second group of portfolio institutions. They typically deal with the public—individuals and companies that want a trusted firm to manage their pensions and other funds. Table 2.4 lists 10 large wealth managers, all based in the G-10. Together, these 10 firms control $6.4 trillion in assets, and their own market capitalization

Table 2.4 Large asset managers in 1998 (billions of dollars)

	Total assets under management[a]	Market capitalization[b]
UBS (Switzerland)	1,145	58[c]
Fidelity Investments (United States)	773	n.a.
Kampo (Japan)	698	n.a.
Credit Suisse Group (Switzerland)	680	50[c]
AXA Group (France)	647	39[c]
Barclay's Global Investors (United States)	616	44[c]
Merrill Lynch & Co. (United States)	501	25[c]
State Street Global Advisors (United States)	493	n.a.
Capital Group Cos. (United States)	424	n.a.
Zurich Financial Services (Switzerland)	415	45[c]
Total	6,392	261 plus
Total for G-10	6,392	261 plus

n.a. = not available (usually a nonpublic company).
G-10 = Group of Ten countries; see note to table 1.1.

a. Figures are assets under management at fiscal year-end 1998.
b. Market capitalization is calculated by multiplying the total number of shares by the share price at the company's fiscal year-end.
c. Figures from *American Banker*, http://www.americanbanker.com/BankRankings.

Sources: Institutional Investor, 1999, http://www.iimagazine.com/research/interface.html; US (II300), Asia (Asia200), and Europe (Euro100) Asset Management Rankings, *American Banker,* http://www.americanbanker.com/BankRankings.

exceeds $260 billion. For the most part, wealth managers are long-term portfolio investors.

Hedge funds represent a highly specialized investment vehicle that is not widely available to the public. Most hedge funds are leveraged; they employ dynamic (and sometimes opportunistic) trading strategies involving positions in several different markets; they adjust their investment portfolios frequently in anticipation of asset price movements or changes in yield differentials between related securities. Hedge funds are opaque to market monitoring: They are subject to little direct regulation and are under few obligations to disclose information. Hence, the size of the industry is difficult to measure.

If they are measured by capital under management or by assets, hedge funds are small relative to established wealth managers. As table 2.5 shows, the capital managed by 20 large hedge funds in late 1998 amounted to less than $50 billion. Estimates vary widely, but if all hedge funds are counted, their assets range from $100 to $300 billion. Even the highest number is less than 5 percent of the combined assets of investment banks and traditional asset managers.

The amount of leverage used by hedge funds depends on trading strategies that are in turn shaped by investor attitudes toward risk. Leverage

Table 2.5 Largest hedge funds according to capitalization, August 1998 (billions of dollars)

Fund	Capital under management
Domestic[a]	
Tiger	5.1
Moore Global Investment	4.0
Highbridge Capital Corp	1.4
Intercap	1.3
Rosenberg Market Neutral	1.2
Ellington Composite	1.1
Hedged Taxable-Equivalent	1.0
Quantitative Long/Short	0.9
Sr International Fund	0.9
Perry Partners	0.8
Offshore	
Jaguar Fund NV	10.0
Quantum Fund NV	6.0
Quantum Industrial Fund	2.4
Quota Fund NV	1.7
Omega Overseas Partners	1.7
Maverick Fund	1.7
Zweig Dimenna International	1.6
Quasar International Fund NV	1.5
SBC Currency Portfolio	1.5
Perry Partners International	1.3
Total[b]	47.1

a. Long Term Capital Management (LTCM) was in serious difficulty in August 1998, and is omitted from the list.
b. Estimates of hedge fund capital and the number of funds vary significantly. MAR/Hedge estimated 1,115 funds with $109 billion capital under management at the end of 1997; Van Hedge Fund estimated 5,500 funds with capital of $295 billions at the same date.

Source: Adapted from Eichengreen (1999a).

is achieved using such instruments as repos (repurchase agreements), futures and forward contracts, and other derivative products.[5] It is also very difficult to measure. A Financial Stability Forum (FSF 2000b) study of hedge funds noted that—although there are problems with the way data vendors report these positions—estimates suggest most hedge funds use modest amounts of leverage, averaging 2:1, but ranging to 4:1 in some. FSF (2000b) further notes difficulties with evaluating the risk-adjusted performance of hedge funds because of their dynamic trading strategies.

5. Positions are established by posting margins rather than the face value of the position.

The positive role of hedge funds—providing diversification to investors because their returns have low correlations with standard asset classes—is counterbalanced by some negative features. Hedge funds and other highly leveraged institutions (HLIs) may take concentrated positions and engage in aggressive market practices that amount to "ganging up" on a small economy (such as Hong Kong).[6] Under normal market conditions, HLI positions are not destabilizing, but some of the aggressive practices documented in 1998 are worrisome. The FSF study group participants agreed (2000b, 112) that such practices raise important issues for market integrity, but they could not agree that market manipulation was sufficiently widespread to be a serious concern for policymakers.

Insurance companies are the third group of portfolio institutions. These are divided into two categories: property and casualty companies, and life and health insurance companies. Ten large companies of each category are listed in table 2.6. In 1998, the 10 property and casualty insurance companies had $1.6 trillion in assets and more than $330 billion in market capitalization. The 10 life insurance companies had $2.8 trillion in assets.[7] Combining both categories, 100 percent of assets are controlled by insurance companies based in the G-10 and Spain. In portfolio management styles, life insurance companies tend to hold longer-term assets, whereas property and casualty companies tend to hold shorter-term instruments.

Nonfinancial Multinational Enterprises

The last players are the nonfinancial multinational enterprises (MNEs). The world's 100 largest corporations measured by 1998 revenue are recorded in tables 2.7 and 2.8. The 30 financial giants among the top 100 are separately shown in table 2.7. Most of the firms appeared in previous tables. Together these 30 financial giants had revenues of $1.3 trillion and controlled assets of $11.3 trillion.[8]

Table 2.8 lists the 70 top nonfinancial giants. Their revenues in 1998 were $4.0 trillion, and their assets (at book value) measured $4.5 trillion. Measured by revenue or assets, about 95 percent of the giants are based in the G-10. These firms are responsible for a large share of the world's

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6. See IMF (1999c) for a description of the "double play" that hedge funds are accused of using in an attempt to destabilize Hong Kong in August 1998.

7. Many life insurance companies are owned by their policyholders, and therefore do not have a market capitalization.

8. By comparison, the larger set of 96 financial firms listed in previous tables controlled $32.2 trillion in assets. This is the total amount of assets recorded in tables 2.1 (50 commercial banks), 2.2 (9 investment banks), 2.4 (10 asset managers), and 2.6 (20 insurance companies). The largest hedge funds might add $300 billion to the total.

Table 2.6 20 large insurance companies in 1998
(billions of dollars)

Property and casualty insurance companies	Revenue[a]	Assets[b]	Market capitalization[c]
Allianz (Germany)	65	402	62[d]
Assicurazioni Generali (Italy)	48	178	30[d]
State Farm Insurance Cos. (United States)	45	111	n.a.
Zurich Financial Services (Switzerland)	39	215	45[d]
CGU (United Kingdom)	38	176	20[d]
Munich Re Group (Germany)	35	131	n.a.
American International Group (United States)	33	194	135[d]
Allstate (United States)	26	88	20[d]
Royal & Sun Alliance (United Kingdom)	25	76	11[d]
Loews (United States)	21	71	7[e]
Total	375	1,642	330 plus
Total for G-10	375	1,642	330 plus
Life and health insurance	**Revenue[a]**	**Assets[b]**	**Market capitalization[c]**
AXA (France)	79	452	39[d]
Nippon Life Insurance (Japan)	66	363	n.a.
ING Group (Netherlands)	56	464	46[d]
Dai-ichi Mutual Life Insurance (Japan)	44	253	n.a.
Sumitomo Life Insurance (Japan)	40	206	n.a.
TIAA-CREF (United States)	36	250	n.a.
Prudential Ins. Co. of America (United States)	34	279	n.a.
Prudential (United Kingdom)	34	197	30[d]
Meiji Life Insurance (Japan)	28	146	n.a.
Metropolitan Life Insurance (United States)	27	215	n.a.
Total	444	2,825	n.a.
Total for G-10	444	2,825	n.a.

n.a. = not available (usually an insurance company owned by its policyholders).
G-10 = Group of Ten countries; see note to table 1.1.

a. Data shown are for the fiscal year ended on or before 31 March 1999.
b. Assets shown are those at the company's fiscal year-end.
c. Market capitalization is calculated by multiplying the total number of shares by the share price at the company's fiscal year-end.
d. Market capitalization data as of September 1999, from *American Banker,* http://www.americanbanker.com.
e. Individual company's market capitalization as of September 1999, from Yahoo!, yahoo.marketguide.com.

Sources: Fortune Global 500, 1999, http://www.pathfinder.com/fortune/global500/index.html; *American Banker*, http://www.americanbanker.com/RankingBanks/1999; Yahoo! Marketguide, yahoo.marketguide.com.

Table 2.7 Financial firms in the 100 largest companies, by revenue, 1998 (billions of dollars)

Global rank	Company	Revenues[a]	Assets[b]	Type
Continental Europe				
15	AXA (France)	79	452	Insurance
23	Allianz (Germany)	65	402	Insurance
28	Ing Group (Netherlands)	56	464	Insurance
37	Credit Suisse (Switzerland)	49	475	Banks: commercial and savings
39	Assicurazioni Generali (Italy)	48	178	Insurance
42	Deutsche Bank (Germany)	45	736	Banks: commercial and savings
56	Zurich Financial Services (Switerland)	39	215	Insurance
68	Munich Re Group (Germany)	35	131	Insurance
72	ABN AMRO Holding (Netherlands)	34	507	Banks: commercial and savings
77	Credit Agricole (France)	33	459	Banks: commercial and savings
80	HypoVereinsbank (Germany)	32	541	Banks: commercial and savings
84	Fortis (Belgium)	31	397	Banks: commercial and savings
98	Société Générale (France)	30	450	Banks: commercial and savings
United Kingdom				
47	HSBC Holdings	43	485	Banks: commercial and savings
58	CGU	38	176	Insurance
74	Prudential	34	197	Insurance
United States				
16	Citigroup	76	669	Diversified financials
35	Bank of America Corp.	51	618	Banks: commercial and savings
44	State Farm Insurance Cos.	45	111	Insurance
64	TIAA-CREF	36	250	Insurance
67	Merrill Lynch	36	300	Securities
71	Prudential Ins. Co. of America	34	279	Insurance
76	American International Group	33	194	Insurance
79	Chase Manhattan Corp.	32	366	Banks: commercial and savings
83	Fannie Mae	31	485	Diversified financials
88	Morgan Stanley Dean Witter	31	318	Securities
Japan				
21	Nippon Life Insurance	66	363	Insurance
45	Dai-ichi Mutual Life Insurance	44	253	Insurance
54	Sumitomo Life Insurance	40	206	Insurance
91	Bank of Tokyo-Mitsubishi	31	664	Banks: commercial and savings
Total		1,279	11,341	
Total for G-10		1,279	11,341	

G-10 = Group of Ten countries; see note to table 1.1.

a. Data shown are for the fiscal year ended on or before 31 March 1999.
b. Assets shown are those at the company's fiscal year-end.

Source: Fortune Global 500, *1999,* http://www.pathfinder.com/fortune/global500/index.html.

Table 2.8 Nonfinancial firms in the 100 largest companies, by revenue, 1998 (billions of dollars)

Global rank	Company	Revenues[a]	Assets[b]	Transnationality index[c]	Type
Continental Europe					
2	DaimlerChrysler (Germany)	155	160	44.1	Motor vehicles and parts
11	Royal Dutch/Shell Group (Netherlands)	94	110	58.9	Petroleum refining
17	Volkswagon (Germany)	76	70	56.8	Motor vehicles and parts
22	Siemens (Germany)	66	67	52.1	Electronics, electrical equipment
32	Metro (Germany)	52	22	n.a.	Food and drug stores
34	Fiat (Italy)	51	76	40.8	Motor vehicles and parts
36	Nestle (Switzerland)	50	41	93.2	Food
46	Veba Group (Germany)	43	51	27.5	Trading
49	Renault (France)	41	45	45.7	Motor vehicles and parts
53	Deutsche Telekom (Germany)	40	93	n.a.	Telecommunications
57	Royal Philips Electronics (Netherlands)	38	33	86.4	Electronics, electrical equipment
59	Peugeot (France)	38	40	38.7	Motor vehicles and parts
62	Electricité de France (France)	37	113	n.a.	Utilities, gas and electric
63	Rwe Group (Germany)	37	47	n.a.	Utilities, gas and electric
65	BMW (Germany)	36	36	60.7	Motor vehicles and parts
66	Elf Aquitaine (France)	36	43	57.6	Petroleum refining
69	Vivendi (France)	35	58	n.a.	Engineering and construction
70	Suez Lyonnaise des Eaux (France)	35	85	n.a.	Energy
78	ENI (Italy)	32	49	31.7	Petroleum refining
86	Bayer (Germany)	31	34	82.7	Chemicals
92	ABB Asea Brown Boveri (Switzerland)	31	32	95.7	Electronics, electrical equipment
93	BASF (Germany)	31	31	59.5	Chemicals
95	Carrefour (France)	30	20	n.a.	Food and drug stores

(*table continues next page*)

Table 2.8 Nonfinancial firms in the 100 largest companies, by revenue, 1998 (billions of dollars) (*continued*)

Global rank	Company	Revenues[a]	Assets[b]	Transnationality index[c]	Type
United Kingdom					
19	BP Amoco	68	85	59.2	Petroleum refining
43	Unilever	45	36	92.4	Food
United States					
1	General Motors	161	257	29.3	Motor vehicles and parts
3	Ford Motor	144	238	35.2	Motor vehicles and parts
4	Wal-Mart Stores	139	49	n.a.	General merchandisers
8	Exxon	101	93	65.9	Petroleum refining
9	General Electric	100	356	33.1	Electronics, electrical equipment
14	Intl. Business Machines	82	86	53.7	Computers, office equipment
25	US Postal Service	60	55	n.a.	Mail, package, and freight delivery
27	Philip Morris	58	60	51.1	Tobacco
29	Boeing	56	37	n.a.	Aerospace
30	AT&T	54	60	21.9	Telecommunications
40	Mobil	48	43	59.7	Petroleum refining
41	Hewlett-Packard	47	34	51.1	Computers, office equipment
50	Sears Roebuck	41	38	n.a.	General merchandisers
55	E.I. du Pont de Nemours	39	40	n.a.	Chemicals
61	Proctor and Gamble	37	31	47.7	Soaps, cosmetics
75	Kmart	34	14	n.a.	General merchandisers
81	Texaco	32	29	45.3	Petroleum refining
82	Bell Atlantic	32	55	n.a.	Telecommunications
85	Enron	31	29	n.a.	Energy
87	Compaq Computer	31	23	n.a.	Computers, office equipment
89	Dayton Hudson	31	16	n.a.	General merchandisers
94	J.C. Penney	31	24	n.a.	General merchandisers
96	Home Depot	30	13	n.a.	Specialty retailers
97	Lucent Technologies	30	27	n.a.	Electronics, electrical equipment
100	Motorola	29	29	n.a.	Electronics, electrical equipment

Japan					
5	Mitsui	109	56	35.8	Trading
6	Itochu	109	57	33.3	Trading
7	Mitsubishi	107	75	36.9	Trading
10	Toyota Motor	100	125	40.0	Motor vehicles and parts
12	Marubeni	94	55	30.0	Trading
13	Sumitomo	89	46	25.9	Trading
18	Nippon Telegraph & Telephone	76	147	n.a.	Telecommunications
20	Nissho Iwai	68	39	38.8	Trading
24	Hitachi	62	82	21.4	Electronics, electrical equipment
26	Matsushita Electric Industrial	60	67	33.2	Electronics, electrical equipment
31	Sony	53	53	62.8	Electronics, electrical equipment
33	Nissan Motor	51	58	51.1	Motor vehicles and parts
38	Honda Motor	49	43	64.1	Motor vehicles and parts
48	Toshiba	41	51	25.2	Electronics, electrical equipment
51	Fujitsu	41	43	32.6	Computers, office equipment
52	Tokyo Electric Power	40	122	n.a.	Utilities, gas and electric
60	NEC	37	42	n.a.	Electronics, electrical equipment
90	Tomen	31	18	n.a.	Trading
99	Mitsubishi Electric	30	35	n.a.	Electronics, electrical equipment
China					
73	Sinopec	34	52	n.a.	Petroleum refining
Total (average for transnationality index)		3,988	4,479	49.0	
Total for G-10 (average for the index)		3,954	4,427	49.0	

n.a. = not available
G-10 = Group of Ten countries; see note to table 1.1.

a. Data shown are for the fiscal year ended on or before 31 March 1999.
b. Assets shown are those at the company's fiscal year-end.
c. The index of transnationality is calculated as the average of ratios of foreign assets to total assets, foreign sales to total sales, and foreign employment to total employment, as of 1997 (UNCTAD).

Sources: Fortune Global 500, *1999,* http://www.pathfinder.com/fortune/global500/index.html; UNCTAD (1999).

foreign direct investment. The "transnationality index" (table 2.8) shows that, on average, they conducted about half their business outside their home country.[9]

Overview of the Players

Our review of the major players points to two major features. First, a handful of big players—fewer than 200 firms, all told—control the action in international capital markets. Their dominance will doubtless erode, but for now financial power is strikingly concentrated with them. Second, the big players are overwhelmingly based in the G-10 countries plus Spain. The responsibility to supervise them rests not in the IMF, nor in Basel, but squarely in Washington, London, Tokyo, and the other G-10 capitals. At year-end 1999, the G-10 countries plus Spain accounted for 84 percent of world banking assets, 86 percent of world stock market capitalization, and 76 percent of international debt securities (BIS 2000a; World Bank 2000b).

International private capital flows are of three types: bank loans and deposits, portfolio investment, and foreign direct investment. In cumulative total flows to emerging markets, FDI was the biggest story in the 1990s, amounting to $954 billion (table 1.2). Portfolio flows were next, cumulatively amounting to somewhere between $612 billion (table 1.2) and $764 billion (table A.1). Bank loans and deposits are the most complicated story.

The Key Role of Banks

Banks are more important as an epicenter than as a wellspring. Banks generate waves in the flow of capital to emerging markets, rather than a continuous steady stream. According to data compiled by the Institute of International Finance (table A.1), net bank lending to emerging markets cumulated to $269 billion in the 1990s. However, deposits by emerging-market residents in G-10 banks more than offset G-10 bank lending to these countries during the decade. According to IMF data, cumulative bank loans net of deposits amounted to a negative $135 billion (table 1.2).

In other words, when loans and deposits are combined, net bank activity that moves financial resources to emerging markets is small in comparison with portfolio investment and FDI. But bank loans are the lubricant of any financial system. Depending on circumstances, banks can be shock absorbers or shock propagators. In recent decades, with

9. The transnationality index is calculated as a simple average of the share of assets, sales, and employees outside the home country.

respect to emerging markets, banks have more often been propagators than absorbers. The average annual swing in bank lending to emerging markets was nearly $50 billion—by far the largest source of year-to-year fluctuations in capital flows. Both interbank loans between Europe, Japan, and Asia, and sovereign Russian debt used as loan collateral, played a major role in the 1997-98 crises—not because banks are profligate players, but because of the incentives they face and the instruments they use. Accordingly, our story begins with banks.

Banks in the Modern Financial System

As we noted in the previous paragraph, the problem of financial volatility in emerging-market economies is associated with bank lending. If and when repayment problems arise, cross-border private bank loans and bond placements are such that private creditors have no plausible means of seizing assets from either private or sovereign borrowers. Thus, although international finance can nourish entrepreneurs and accelerate growth, a necessary complement may be a drastic creditor response in the event of nonpayment—to withhold fresh funds and force an economic crisis (Dooley 2000).

This argument is based on the characteristics of banks. They are not "bad" per se. They perform three essential functions in any financial system: pooling the resources of disparate savers, and channeling these resources into productive investment; improving resource allocation through their expertise in assessing and monitoring borrowers; and facilitating the division of risk among numerous creditors.[10] But by their very nature, banks are prone to two problems: asymmetric information (the borrower knows more about the potential risk and return of its projects than the bank); and adverse selection (riskier borrowers will pay higher interest rates and thus may constitute a disproportionate share of bank loan portfolios).[11]

Bank loans are illiquid fixed-price instruments. They cannot easily be converted to cash, although they can be bundled into securities (known as "securitization"). Once loan terms have been agreed on, the only way a bank can adjust for shifting market conditions is by changing the quantity of its exposure. When a borrower runs into trouble, the bank can mix

10. See Levine (2000) for a concise description of the role of banks in the financial system.

11. The asymmetric information problem helps to explain why banks dominate the immature financial systems of emerging-market economies. The general lack of information on borrowers and undeveloped legal systems to enforce contracts hamper suppliers of long-term financial instruments such as equities and bonds in evaluating risk and reward. Banks are best suited in these circumstances to solve the asymmetric information problem by evaluating and monitoring private loans. As more and better information becomes available, capital markets develop and financial systems mature.

and match from two unpleasant menus: It can roll over existing loans and extend new credit, or it can call some part of existing loans and attempt to recover the principal. It can also hedge by selling short other claims on the borrower. These choices entail either an unwelcome extension of the bank's exposure or credit rationing against the borrower. When trouble brews, all banks encounter the same conditions; in the aggregate, they prefer less exposure, and ensuing credit restrictions lead to volatile bank lending.

Innovation

Since the 1980s, national and international banking systems have been transformed by deregulation, intensified competition, and the information and communications-technology revolutions. The market environment is one of intense competition, particularly in traditional banking activities. The innovations point away from traditional activities of plain vanilla deposit taking and loan making. Three big themes are discernible. First, the walls separating commercial banks, investment banks, portfolio managers, and insurance firms are falling, even if they are still distinct. Second, large banks are shifting toward securitization—creating securities out of everything from credit card debt, to trade finance, to disaster insurance—and earning fees in the process. Third, all large banks are shifting toward trading activity, making markets and taking short-term stakes in bonds, shares, and derivatives.[12] These activities, when successful, satisfy the search for higher yields.[13]

Many of the new financial instruments that banks trade are "off balance sheet." This means that banks are not required to allocate capital against them. In swap contracts, for example, neither side pays cash at the outset, and therefore neither party has an asset in the traditional sense.[14] Futures and options contracts can be written with a relatively small initial

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12. Derivatives have no value of their own. They "derive" their value from the value of the underlying asset. They include swaps, futures (contracts for future delivery at specified prices), and options (which give one party the right, but not the obligation, to buy from or sell to a counterparty at an agreed price).

13. Maxfield (1998) analyzed available evidence of emerging-market investor objectives, most of it before the crisis. Analysis of portfolio equity flows is sensitive to the choice of period, with year-over-year data indicating that investors respond to country "fundamentals." Other evidence suggests more ambiguity. Ranking by "investor impatience," i.e., the search for yield over value, Tesar and Werner (1995) find short-term bank flows to be the most yield driven, followed by portfolio investment, FDI, and long-term bank lending.

14. Because market risk, credit risk, and country risk interact in complex ways, new financial instruments have been created to help reduce negative interactions. One is the "total return swap," which has become an instrument of choice for hedge funds looking for high leverage. Banks also use the total return swap to cover risks without increasing their capital requirements.

margin relative to the potential risk. Credit derivatives limit credit risk by transferring the potential loss associated with corporate loans and bonds, sovereign debt, and other loan portfolios to counterparties.[15]

Deregulation and innovation, working in combination, seem to have pushed banks into trading activity and leveraged plays, but not into share ownership—even in jurisdictions that have no prohibition against equity stakes. Among the G-10 banking systems, the highest ratio of share ownership to assets was only 5 percent in 1996, reached in Germany and Japan (Berlin 2000).[16]

The wave of innovation in financial instruments, and the accompanying expansion of banking beyond its old boundaries, is a two-edged sword. On one side, it allows risk management far beyond what was traditionally possible. Risk can now be shifted from firms that can ill afford losses to those that can. Banks can profitably act as intermediaries in shifting risk. On the other side, the innovation wave creates huge opportunities for leveraged plays, fostering a speculative search, by banks themselves, for high returns that in turn magnify their own risks.[17]

Leverage

The potential for damage is illustrated in an extreme form by figure 2.1. To precisely measure a firm's leverage, all positions must be known and realistically valued—which may be impossible to do. Because many activities—such as repos[18] and derivatives—do not appear on the institution's

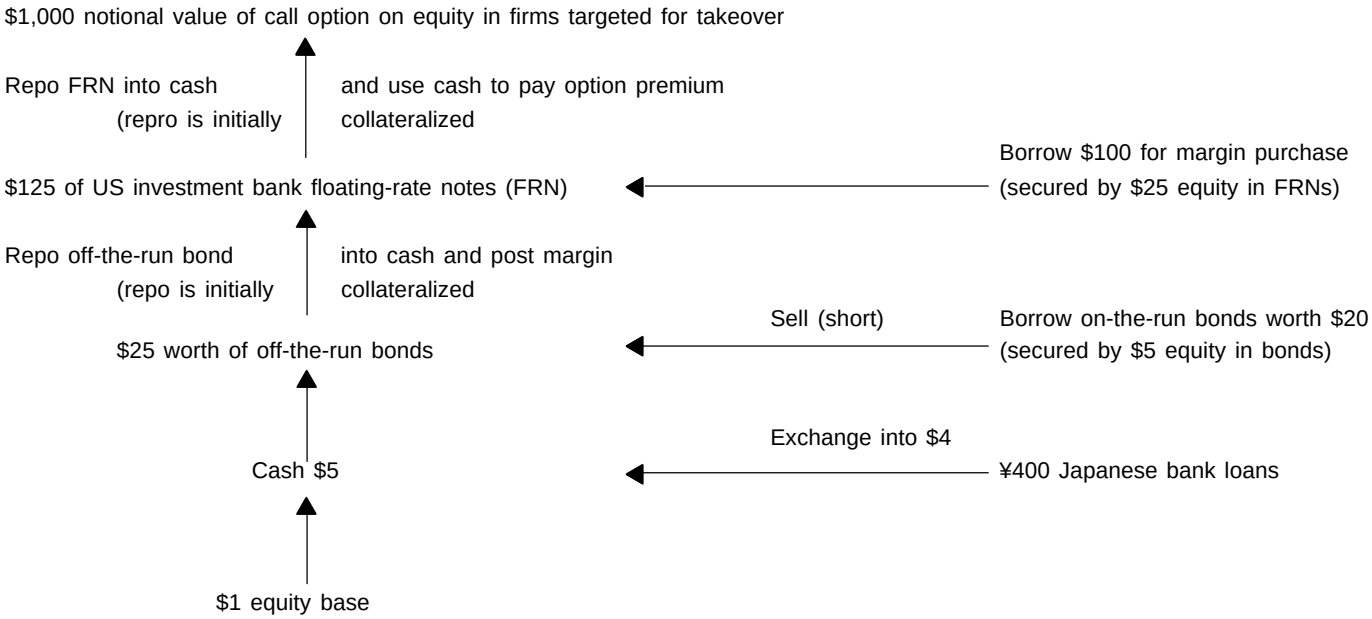
15. Credit derivatives include total return swaps, credit default swaps, credit-linked notes, and collateralized debt obligations. They are the fastest-growing sector of the global derivatives market.

16. Banks seem to specialize in lending even when they are allowed to mix finance and commerce, for reasons related both to how they are expected to behave with distressed firms and to other intricacies of lender liability (Berlin 2000). Yet a recent cross-country study found that restrictions on banking and commerce are associated with greater financial instability (Barth, Caprio, and Levine 2000).

17. Leverage is the magnification of the rate of return (positive or negative) on an investment, beyond the rate obtained by solely investing funds owned by the institution. It is often defined as the ratio of assets to equity. Leverage is achieved by increasing the size of an investment by borrowing or using derivative instruments such as futures or options. These allow investors to earn a return on the notional amount underlying the contract by committing a small portion of equity in the form of a margin deposit or option premium payment.

18. In a repo (repurchase agreement), one party (typically a trader) buys a bond and sells it to a dealer for cash with a promise to buy it back the next day at the same price plus the overnight interest rate. As long as the overnight interest rate is lower than the interest accruing on the bond, the trader earns some income on the bond. The extreme form of these kinds of transactions was discovered at LTCM, the failed US highly leveraged institution, which appears to have controlled more than $120 billion in assets from an investment of about $3 billion. This leveraging was accomplished mostly through the use of repos (Mayer 1999).

Figure 2.1 Hypothetical example of leverage



FRN = floating rate notes
Repo = repurchase agreement

Source: IMF (1998).

balance sheet, and because balance sheets are published quarterly at best, outsiders have a difficult time assessing the extent of a firm's leverage.[19] Leveraging by a single firm enhances its risk of default; the widespread use of leverage in the financial system can magnify market adjustments, especially when they require "deleveraging"—unwinding prior positions. Rapid adjustments can cause credit to dry up and asset prices to plummet. In a mark-to-market environment, falling asset prices trigger calls for additional collateral that can ripple through markets.

Risk Management

Because it is confronted with the widespread use of leverage and proliferating kinds of risk, international finance is increasingly driven by risk evaluation and control.[20] Different institutions face various risk profiles and differing kinds of risk. The most common risks can be quickly ticked off. Banks, because of their traditional intermediary role of channeling the resources from savers to borrowers, face significant *credit risk*, the risk of default or delay in the payment of principal and interest. They must also manage *market risk*, the risk that the prices of their liabilities may change faster than their assets. Market risk devastated US savings and loan institutions in the late 1980s.

Closely associated with market risk are *interest-rate risk* (unexpected changes in market interest rates that slash margins, net income, and the economic value of a bank's equity) and *foreign exchange risk* (losses that arise when assets denominated in an appreciating foreign currency are less than liabilities denominated in that currency). Banks make numerous loans to other banks around the world; portfolio investors buy securities; direct investors acquire fixed assets; and all incur *country risk* (economic and political uncertainty in the host country). During the height of the Asian crisis, for example, interbank loans to Japanese banks reflected the credit risk of lending to these banks, the so-called Japan premium.

Substantial attention has been lavished on country risk analysis since the 1982 debt crisis in developing countries. Yet, in spite of this expertise, the Asian crisis occurred in part because of a sudden upward reappraisal of country risk after the Thai baht collapsed in April 1997. Banks and other financial institutions must also manage *liquidity risk*, the risk that market conditions will change, unexpectedly depressing demand and prices of assets at the time they want to sell these assets. And they must manage *operational risk*—failures in control systems or people that cause

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19. Another example of asymmetric information: Both risk and leverage are difficult for outsiders to assess without full, timely disclosure.

20. A longer discussion of these issues can be found in Managing Global Finance in IMF (1999c).

financial loss or damage reputations. Operational risk devastated Barings Bank in 1995.

Financial institutions practice risk management to measure all these risks, the potential damage to their investment positions, and ultimately the chance of becoming insolvent. VAR (value at risk) risk models measure, subject to certain assumptions, the amount of the firm's capital that is exposed in each period. For example, the VAR model might say that, in a 3-standard-deviation worst case (a case that is not supposed to happen more than 1 percent of the time), the firm will loose 25 percent of its capital during the next year.

VAR models are widely used but like all models they have weaknesses. They rely on past values to estimate key variables; in financial markets, past values are not always good predictors of future risks. Moreover, rising volatility and higher loss correlation among different asset classes in a portfolio will cause all banks using these models to reduce their exposures at the same time by switching to less volatile and less correlated assets, such as US Treasury bills (Persaud 2000).

Newer risk models entail stress testing and scenario analysis. Scenario analysis envisages possible adverse changes, one at a time, that might affect the investment portfolio. Stress testing estimates potential losses when several individual risk factors simultaneously move against the firm, but it too uses historical probabilities.

Financial Volatility

The combination of trading activity and modern risk management lie at the root of financial volatility. When risks increase, banks must either raise more capital to cover the greater risk or reduce their exposure, by cutting loan exposure, by selling securities, or by undertaking new derivative trades. Raising more capital is time-consuming, and in a crisis very expensive because bank shares are depressed. So banks look to the other alternatives. If the bank can reduce lending, it need not book a loss. But most banks use the same VAR models, and, as indicated above, these models will encourage them to reduce their outstanding loans at the same time, actually magnifying loan volatility.

If banks attempt to reduce their exposure to risk by selling securities or undertaking new derivative trades, they may trigger large price shocks because of limited, and shrinking, market liquidity.[21] The liquidity problem is compounded when a small number of large institutions hold the same positions.[22] Take your pick: loan volatility or price

21. For example, derivative markets usually rely on underlying securities markets that produce continuous prices. When these markets are interrupted, financial shocks can trigger a cascade of margin calls and sell orders that move prices very sharply.

22. See IIF (1999a).

volatility. As two experts have observed (Folkerts-Landau and Garber 1998),

> [V]olatility even in one country will automatically generate an upward re-estimate of credit and market risk in a correlated country, triggering automatic margin calls and tightening of credit lines. . . . Thus, apparently bizarre operations that connect otherwise disconnected securities markets are not the responses of panicked green screen traders arbitrarily driving economies from a good to a bad equilibrium. Rather, they work with relentless predictability and under the seal of approval of supervisors in the main financial centers.

One of the lessons of the 1997-98 crisis must surely be that market participants and their regulatory supervisors relied too heavily on quantitative tools and insufficiently on judgment.[23]

The Anomaly of Modern Banking

These changes in the banking environment accentuate an existing anomaly. The anomaly is that banks, even as they grow larger and increasingly engage in more risky and complex transactions, are perceived to enjoy implicit and explicit public guarantees.

The guarantees grow out of an incentive problem inherent in banking: *asymmetric information*, which we mentioned above. Depositors know less about a bank's management and the quality of its balance sheet than do its managers and shareholders. Thus, in times of uncertainty or adversity, bank depositors—uncertain whether they will have access to their deposits—are prone to bank runs. This prospect has, in turn, compelled governments to treat banks differently than other firms, because a bank that fails can disrupt the rest of the economy.[24]

To prevent such crises, governments have entered into quid pro quo arrangements with banks. Governments provide them both with an implicit safety net, in the form of an unstated promise by the central bank to act as a lender of last resort in a liquidity crisis, and an explicit safety net, in the form of a public deposit insurance fund to reassure depositors. In return, the banks submit to closer government oversight and regulation of their activities than is usual for industries in the private sector.

The "insurance" provided by the public safety net contributes to another incentive problem, *moral hazard*. Banks acquire greater tastes for risk and face less market discipline than other firms. The explicit deposit insurance safety nets actually have, or are perceived to have, blanket coverage that extends beyond the retail depositors (households and small

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23. See Ferguson (1999).

24. As Gerald Corrigan (1982) put the matter, "Banks are special." Corrigan (2000) reiterated this view, even after all the changes of the past two decades. Unlike other institutions, banks offer on-demand transactions, are a backup liquidity source for other institutions, and serve as a "transmission belt" for monetary policy.

businesses) for which they were originally intended. The implicit central bank safety nets extend, in a crisis, to nearly all depositors and banks. Thus banks are both viewed, and behave, as if they will be bailed out if they get into trouble.

The existence of a public safety net raises a perennial question: Do banks have an unfair advantage over other financial institutions because of the subsidy provided by the safety net? This question was at the heart of intensive study and debate in the United States leading up to the passage in November 1999 of the Financial Services Modernization Act (also known as the Gramm-Leach-Bliley Act). The size of the gross subsidy is difficult to estimate, despite determined research efforts. Some suggest it is well under 100 basis points and is at least partly offset by the direct costs of deposit insurance premiums, interest payments on bonds issued by the Financing Corporation,[25] reserve requirements, regulatory expenses, and operational costs associated with collecting deposits.[26] Conversely, Kwast and Passmore (2000) suggest that banks can expand their scope far beyond the levels that other financial institutions could reach with the same equity base but without the public safety net.

A related concern in the US debate is whether allowing banks to expand their activities into securities and insurance will ultimately extend the safety net and add to the subsidy. The Financial Services Modernization Act deals with this issue by maintaining a legal separation between banks and the rest of the banking organization, known as large complex banking organizations (LCBOs): They must engage in most securities activities and insurance underwriting through separately capitalized investment bank subsidiaries or holding company affiliates. This act can be said to have merely brought US banking laws closer to those of most other industrial countries (Barth, Brumbaugh, and Wilcox 2000; Barth, Nolle, and Rice 2000). *If* the fire wall is well-maintained and stoutly defended, the safety net will neither expand in practice nor become a source of comfort to noncommercial bank subsidiaries of LCBOs.

The quid pro quo exacted by governments to offset the subsidy is closer public-sector monitoring of banks' activities through prudential supervision. The effectiveness of this closer official scrutiny—and closer market monitoring—are the subjects of the next section.

Prudential Supervision

Are G-10 bank supervisors adequately responding? In this section we first assess the case for and compare the structures of prudential supervisory

25. The Financing Corporation was created by Congress in 1987 to sell bonds to raise funds to help resolve the savings and loan crisis.

26. See Levonian and Furlong (1995); Jones and Kolatch (1999); Shull and White (1998); and Whalen (1999a, 1999b).

systems, both within and among the G-10 economies plus Spain, and consider whether these offset the subsidy provided by the public safety net. Despite offsetting regulation and supervision, implicit and explicit guarantees by G-10 governments to their banks *are still* a source of banking instability in the emerging-market economies.

National Systems for Prudential Supervision

Governments use prudential supervision to reduce the moral hazard and adverse selection created by their own safety nets. Supervisors establish regulations and monitor compliance to limit risk taking and ensure the safety and soundness of the banking system. In a thoughtful analysis of the case for prudential supervision, Frederic Mishkin (2000) identifies the main forms that supervision can take, including the tasks of granting banking charters and licenses, establishing capital requirements, setting deposit insurance premiums and defining disclosure requirements, as well as carrying out bank examinations. Bank examiners gather information from banks and evaluate whether they are following the regulators' rules; in cases of weakness, they are empowered to change banks' behavior and close them if necessary.

Supervisors also may restrict competition, define the activities in which banks may engage and restrict their asset holdings, and separate banks and other financial (or nonfinancial) activities. During the past two decades, the barriers separating commercial banks, investment banks, insurance firms, and securities firms have been all but eliminated (table B.1). Deregulation has stimulated competitive forces that drive diversification and consolidation of the financial industry, nowhere faster than in the United States.

The Financial Services Modernization Act of 1999 confirmed this trend. It eliminated restrictions dating back to the Glass Steagall Act of 1933, which once prevented banking, insurance, and securities firms from entering each other's businesses (Barth, Brumbaugh, and Wilcox 2000). Cross-pillar mergers among banks, insurance, and securities firms are well under way to form giant financial holding companies. The 1999 merger between Citibank (banking) and Travelers (insurance) created the model for megafinance and confirmed new challenges for supervisors.

Mishkin (2000) notes the corresponding evolution in US supervision, from an emphasis on rules-based regulation (detailed rules for operational behavior and the quality of line items in the balance sheet) to an approach that stresses the soundness of bank management practices, especially risk management.

Appendix B outlines the systems of financial supervision now in the place in the G-10 countries plus Spain. Some systems, like the UK and Canadian approach, are models of simplicity—organized to keep pace with the spreading reach of financial conglomerates. Other systems, like

the US and French approaches, show traces of the bureaucratic divisions that made sense in an era when banking, securities, and insurance were sharply separated.

The US Model

The US model of financial regulation, delineated in the Financial Services Modernization Act of 1999, blends functional and umbrella supervision. Bank and thrift regulators oversee depository institutions. New nonbank activities are subject to both functional regulation (e.g., by the Securities and Exchange Commission and state insurance examiners) and umbrella supervision (of financial holding companies) by the Federal Reserve.[27]

The UK Model

Another supervisory model exists in the United Kingdom, as well as in Australia, Canada, and Switzerland.[28] In this model, banking supervision is separated from the monetary policy function. The regulatory structure is considerably simplified by relying on a consolidated financial regulator, separate from the central bank, for both banking and nonbanking activities. The remaining question, answered differently depending on the country, is the extent to which the regulator relies on home-country surveillance of banks and conglomerates that have a local presence.

Regulatory Models Compared

Appendix B provides more detail on the differences in these models. German simplicity contrasts with French complexity. In France, the banking commission is chaired by the governor of the central bank and includes representatives from the Treasury. The commission supervises compliance with regulations, but the central bank inspects banks on behalf of the commission.[29] In countries such as the United States and France, with multiple supervisors and crossover functions, internal coordination is critical. At the same time, multiple agencies create regulatory competition. When each agency knows what the other is doing, transparency within government circles can help to limit principal-agent problems of regulation.[30]

The discussion as to where, in the public bureaucracy, financial super-

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27. See Meyer (1999a).

28. Canada has a similar degree of simplification, with the exception that securities firms are still regulated by provincial authorities.

29. See Pratti and Schinasi (1999, 67).

30. The agents are the bank regulators, and the principals are the taxpayers. Agents may pursue their own interests, including bureaucratic survival and postgovernment employment opportunities, rather than the national interest in banking safety and soundness.

vision should be placed goes back many years. Peek, Rosengren, and Tootell (1999) argue that a synergy exists between monetary policy and prudential supervision because information gained in the course of supervision can increase the accuracy of macroeconomic forecasts. A twist to this argument is that the information on the state of financial institutions available to the central bank as supervisor can facilitate its role as lender of last resort. Conversely, there is the concern that a supervisory role will compromise the central bank's independence of action with respect to its core mandate—maintaining price stability. As these arguments have played out, financial supervision has generally been shared between central banks and other regulators, or placed entirely in the hands of an independent regulator. However, in Italy, the Netherlands, and Spain, central banks are the sole banking supervisor.

Goodhart (1995) examined the arguments and evidence for each model and concluded that there were no overwhelming arguments or evidence for one or the other.[31] Going forward, a key problem for any financial supervisory system is dealing with (and closing as necessary) weak banks. If both central banks and other regulators have this responsibility, close coordination between them is critical. Another problem is large conglomerate banks, LCBOs. Although they are less likely to fail because of the diversification of their assets and liabilities, they are more likely to be rescued. They are also more likely to be multinational enterprises with international implications. Goodhart observes that regulation of these entities might be put in the hands of the central bank because it is less amenable to political pressures. In any event, the complexity of LCBO operations suggests that greater supervisory rigor is necessary.

The US Congress was persuaded that broad oversight would help contain the moral hazard problem, and accordingly gave the Federal Reserve the role of umbrella supervisor, with the understanding that the Fed will scrutinize depository activity more intensely than nonbank financial activities. Under this approach, LCBOs such as Citigroup are subject to much closer monitoring than smaller and simpler institutions.[32] The US regulatory model requires enormous cooperation between the Fed, other bank supervisors, and the functional regulators for insurance and securities, but it also benefits from regulatory competition.

Public Safety Nets

One of prudential supervisors' biggest challenges is to reduce moral hazard. For many years, commercial banks engaged in communal self-insurance

31. National systems of supervision are path dependent; they are determined by the structure of financial institutions and history in each country. If Goodhart (1995) is right, outcomes are not materially better or worse with one model of supervision rather than another.

32. See Ferguson (1999).

to deal with crises. They formed voluntary groups that agreed to rescue troubled members. As financial markets evolved and competition intensified, banks were no longer willing to play this role. Private-sector insurance is one alternative, but moral hazard and adverse selection would appear to prevent it from happening. Public safety nets have developed because of the low probability and high cost of potential bank runs. A clear trade-off is involved. The effectiveness of insurance in preventing bank runs is greater the more comprehensive the coverage. But the more comprehensive the coverage, the greater the moral hazard—bank managers, bank directors, investors, and depositors all take on greater risks in the belief that the safety net will protect them against losses.

All G-10 countries have compulsory public safety nets for banks (table 2.9). Deposit insurance agencies are officially organized in Canada, the Netherlands, Sweden, Switzerland, and the United States; organized by the industry in France, Germany, Italy, and the United Kingdom; and jointly organized by the public and private sectors in Belgium, Japan, and Spain.

How well do G-10 governments offset the subsidy provided by the public safety net? This is a question on which there is substantial debate. As banking organizations have become more complex, the challenges that supervisors face have become more difficult. One challenge is to align the incentives facing bank managers and shareholders with those of depositors. Another is the principal-agent problem in supervision. We have discussed the incentive structures for financial institutions, but we have said little about the incentives for supervisors themselves and the distortions they can generate in the financial system.

In one of the many studies of the US savings and loan crisis of the 1980s, Kane (1989) documented both problems. He described managers using cosmetic approaches to disguise the magnitude of insolvency; regulators practicing forbearance even though they knew of the deteriorating risk profiles of the institutions for which they were responsible; and legislators increasing deposit insurance without regard for any offsetting changes in supervision. A subsequent overhaul of the legislative framework for the Federal Deposit Insurance Corporation (FDIC), known as the FDIC Improvement Act of 1991 (FDICIA), aimed to introduce a clearer incentive structure for both regulators and regulated institutions.

The changes introduced by this US legislation are worth discussion with respect to the other G-10 countries as well. First, FDICIA created a stronger signal to management and investors by targeting deposit insurance at small depositors only and by risk-weighting the deposit insurance premiums paid by banks to reflect their capital adequacy and bank examiner ratings. Among the G-10 countries rated in table 2.10, deposit insurance premiums vary considerably—but it is not clear that the differences have much to do with risk-weighting. Most G-10 countries employ funding formulas based, for example, on the total domestic deposit

Table 2.9 Deposit insurance schemes in the G-10 countries: Explicit safety net

Country	Date established	Membership, management[a]	Co-insurance[b]	Coverage limit (dollar equivalent at end of July 1998)[c]	Foreign currency deposit covered	Interbank deposit covered	Funding[d]	Source of funding	Bank's premium costs	Contingency funding from banks or governments
United Kingdom	1982	Compulsory, private	Yes	Larger of 90 percent co-insurance to 33,000	No	No	Unfunded	Banks only	Callable (subject to maximum 0.3 percent of total deposits)	Parliament may increase the maximum payable; £125 million advance facility with Bank of England
United States	1934	Compulsory, official	No	100,000	Yes	Yes	Funded	Banks and government	Up to 0.27 percent total domestic deposits	Borrowing up to $3 billion from US Treasury
Japan	1971	Compulsory, joint	No	71,000 but in full until year 2000	No	No	Funded	Banks and government	0.084 percent of insured deposits	Borrowing up to ¥500bn from Bank of Japan subject to Ministry of Finance approval
Canada	1967	Compulsory, official	No	40,800	No	Yes	Funded	Banks and government	0.33 percent of insured deposits (maximum)	Borrowing up to C$6 billion authorized; further borrowing subject to parliamentary approval
Germany	1966	Compulsory private	Yes	90 percent coinsurance to 22,000	Yes	No	Funded	Banks only	0.03 percent of deposits	Annual levy may be doubled
Italy	1987	Compulsory private	Yes	125,000	Yes	No	Unfunded	Banks and government	Callable (maximum of 1 percent of total deposits)	Two options: defer payment or diminish compensation to be paid

(*table continues next page*)

Table 2.9 Deposit insurance schemes in the G-10 countries: Explicit safety net (*continued*)

Country	Date established	Membership, management[a]	Co-insurance[b]	Coverage limit (dollar equivalent at end of July 1998)[c]	Foreign currency deposit covered	Interbank deposit covered	Funding[d]	Source of funding	Bank's premium costs	Contingency funding from banks or governments
Netherlands	1979	Compulsory, official	No	22,000	Yes	No	Unfunded	Banks and government	On demand, maximum of 5 percent of own funds	Government backing subject to parliamentary approval
France	1980	Compulsory, private	No	65,400	No	No	Unfunded	Banks only	Callable (on demand, calls up to FFr200 million)	Extra calls up to FFr1000 million can be made in a 5-year period
Switzerland	1984	Voluntary, official	No	19,700	No	No	Unfunded	Banks only	Callable (on demand)	Underwritten by member banks
Sweden	1996	Compulsory, official	No	31,400	Yes	No	Funded	Banks and government	0.5 percent of deposits	Full emergency coverage while replacing it with a limited system after the emergency
Belgium	1974	Compulsory, joint	No	16,600; 22,000 in year 2000	No	No	Funded	Banks and government	Callable 0.02 percent of deposits from clients	None, insurance limited to assets in fund
Spain	1977	Compulsory, joint	No	16,439	Yes	No	Funded	Banks and government	0.2 percent of deposits (maximum)	Government backing through the Banco de España, subject to approval by royal decree

a. Bank membership in the fund can be either compulsory or voluntary, and the management of the fund can be official and official and private joint, or private.
b. Coinsurance refers to the situation where depositors face a deductible against their insured funds.
c. Coverage limit refers to the explicit amount the authorities promise to insure.
d. Funded scheme means that it is funded ex ante, unfunded otherwise.

Sources: Goodhart (1995); Demirguç-Kunt and Detragiache (2000); Demirguç-Kunt and Sabaci (2000).

base. Explicit safety net protection also varies, but only Canada focuses on the protected class.[33] All G-10 countries specify a limit on depositor protection. Under FDICIA, the insurance fund is prohibited from protecting uninsured depositors or creditors at a failed bank, although a discretionary system-wide override is provided for exceptional circumstances—but with stringent requirements for consultation and accountability. Other G-10 countries allow for contingency funding from the public purse, alongside unwritten lender-of-last-resort support. Among large banks, a significant and growing portion of deposit liabilities, including foreign currency and interbank deposits, are uninsured—but depositors assume they will be protected in a crisis.

FDICIA also made some significant qualitative changes to address the principal-agent problem by penalizing weak banks and rewarding strong banks. For example, banks whose capital declined faced progressively tougher regulatory sanctions that, for example, required them to eliminate dividends, restrict their lending, and change their managements. Regulators have also been forced to take prompt corrective action (to reduce the practice of regulatory forbearance in hopes that a bank's fortunes might improve).[34] Unfortunately, comparative qualitative assessments across the G-10 are difficult to make due to lack of information.[35]

This discussion highlights the complexity of evaluating the extent to which prudential supervision and market discipline reduce the moral hazard associated with G-10 safety nets. Our argument is that public safety nets in the G-10 can be linked to banking instability in *other* countries, specifically in the emerging-market economies that have attracted G-10 cross-border bank lending. This lending is a leading source of volatility in capital flows; the large financial institutions, many of which are complex banking organizations, are based in and regulated by authorities in the G-10 economies. These two features of the international financial system are closely related, although it is not possible to test this relationship econometrically.

Two World Bank studies, however, indicate a basis for concern. One study is a cross-country econometric analysis of the relationship between bank stability and deposit insurance (Demirguç-Kunt and Detragiache 2000), which found a negative relationship. Their estimated model for banking crises in a sample of 61 countries (both industrial and developing) suggests that explicit deposit insurance raises the probability of a crisis by at least 30 percent.[36] Crises are especially likely in countries

33. Japan's legislation says it does, but recent experience shows this is not the case.

34. See Goldstein (1997) for a summary of the changes.

35. See Barth, Nolle, and Rice (2000) for a beginning in this area.

36. Demirguç-Kunt and and Detragiache (2000, table 1) report a logit coefficient of 0.696 with a standard error of 0.397 (the coefficient is significant at the 8 percent threshold). This suggests that the "true" coefficient could well be as small as 0.30 (the reported value minus the standard error).

with immature financial supervisory systems (and not in the G-10), but their analysis does underscore the view that deposit insurance weakens market discipline.[37]

An earlier World Bank analysis established similar results. One was that market discipline is undermined by deposit insurance schemes; another was that illiquid banks are forced to pay more for their funds unless a generous deposit insurance scheme is in place (Demirguç-Kunt and Huizinga 1999). This econometric study also provides clear-cut evidence that depositor monitoring of banks declines with the existence of deposit insurance schemes. At the heart of the problem is the question of whether deposit insurance is accompanied by increased government monitoring.

This evidence, and the weight of other arguments, suggests that moral hazard is still an issue in the G-10 countries. Consider the ongoing debate about instilling greater market discipline on risk taking by banks. At one extreme is the perennial proposal to do away with safety nets, leaving markets to monitor the players and to force adjustments, but to protect small savers by creating "narrow banks," such as postal saving systems, that are allowed to invest these savings only in risk-free government securities. Whatever the merits of narrow banking, this solution is too extreme to be politically feasible.

A moderate alternative is to force more disclosure by financial institutions to facilitate market monitoring. But transparency has its own problems. Persaud (2000) argues that financial markets cannot reliably discern sustainable from unsustainable positions in the short term. This uncertainty causes banks to "herd" behind market leaders, to exploit their supposedly superior information: "The more herding investors and bankers know about what each other is up to, the [more] unstable markets may become." The implication is that greater transparency in the marketplace by itself will not solve the problem—and, in the short term, more information may exacerbate herding. Further supervisory steps (discussed in the next chapter) are required.

Yet another proposal is to promote private-sector involvement in bank monitoring through market-based alternatives such as Calomiris's subordinated debt proposal (Calomiris 1997; Federal Reserve Board 1999). Banks could be required to issue and maintain a minimum amount of

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37. Other findings in the Demirguç-Kunt and Detragiache (2000) study include these propositions: The impact of deposit insurance on bank stability tends to be stronger the more extensive is the coverage offered to depositors, when the scheme is funded, and where the scheme is run by the government rather than by the private sector. Conversely, deposit insurance is detrimental to bank stability where bank interest rates have been deregulated and where the institutional environment is weak. Additional findings on deposit insurance are reported from a recent World Bank conference (8-9 June 2000; http://www.worldbank.org/research/interest/confs/upcoming/deposit_insurance/home.htm). Also see Smalhout (2001).

subordinated debt (e.g., uninsured certificates of deposit) to finance a small fraction (such as 2 percent) of their total nonreserve assets. The subordinated debt would be allowed to earn a set yield *no more* than 50 basis points over the risk-free yield on government treasury bills. This rule would supposedly force banks to operate in a safe manner. Otherwise, subordinated debt holders would redeem their uninsured certificates of deposit, and equity investors would sell their bank shares. Despite its practical problems, the beauty of the subordinated debt requirement is that it enlists market incentives to push banks to avoid excessive portfolio risk.[38]

The thrust of these proposals is very relevant to the arguments in our study. Even in the G-10 countries, government monitoring by itself has not eliminated moral hazard among banks. More work is needed to introduce market monitoring and to improve the incentive structures both for financial institutions and their supervisors. We return to this issue with our recommendations in the next chapter.

Portfolio Institutions: Tomorrow's Problem?

Before proceeding to the issues of international supervision, we flag another potential problem for national regulators. The big asset managers profiled in tables 2.4 and 2.6 answer to diverse groups of pensioners, shareholders, and policyholders. They allocate funds across a number of countries to diversify their risks. They hold liquid assets that can be traded, and they have a higher proportion of long-term assets than banks. Economic shocks can be absorbed through price changes, and their effects spread across time and markets. Thus, when conditions change in a particular market, they are more likely to ride out the storm than to flee. In other words, they have less incentive than banks to pull their investments in the face of adversity. In the 1990s, most large asset managers established a record of "riding out the storm" rather than "running with the wind," although, as we saw in chapter 1, instances of running with the wind were detected in some portfolios. As we write, these institutions have a good record overall in the emerging markets, so why worry?

The Russian crisis and the near-collapse of LTCM previewed the dangers that may await future portfolio managers and G-10 financial ministers. We have presented evidence indicating a systemic bias toward bank

38. In late 1996, Argentina began requiring its banks to finance 2 percent of total deposits in the form of subordinated debt, but without a maximum yield provision. The Argentine authorities expect that market discipline will act in concert with the public safety net. One obvious problem with the subordinated debt proposal is that banks may encourage some of their customers to buy the subordinated debt.

lending and debt finance to emerging markets and we have argued for substitution toward equity finance and direct investment.[39]

That is not the end of the story. We noted in the previous chapter that institutional investors can become momentum investors, selling in a downturn. As more portfolio capital is invested in emerging markets, some players may adopt the high-risk, high-leverage strategies of the most aggressive hedge funds. Indeed, the data in box 1.1 show that G-10 portfolio investors held somewhat more long-term debt (more than $500 billion) than equity (less than $400 billion) in emerging markets at the end of 1997. Long-term debt is an ideal vehicle for high-risk, high-leverage strategies. These strategies, practiced on a large scale, could compound a future crisis, harming emerging markets. A big enough crisis could, in turn, pressure G-10 central banks and finance ministers to arrange bail-out plans. Instead of shrinking as a systemic financial problem, moral hazard could increase.

National securities regulators are the first line of defense against this scenario. They play a critical role in the safe evolution of capital markets. But regulators today are mandated to approve the issuance of new securities and to monitor the continuing disclosure of material information by issuers. They are far less concerned with, or empowered to monitor, the behavior of the increasingly large wealth-management firms that are the major *purchasers* (and therefore resellers) of these securities.

Within their mandates, the goals of national securities regulators (table 2.10 and appendix B) are similar to the concerns of bank regulators with system safety and soundness. Their focus is also on the incentive systems for management and boards of directors and on disclosure by corporations that issue marketable securities, such as shares, bonds, and asset-backed securities.[40] Issuers of securities possess greater knowledge about the quality of these assets than do the purchasers; hence, investor protection is a key concern of regulators. Moreover, market discipline works best when markets know what is happening. Well-functioning corporations are key agents of wealth creation and social progress. Underperforming corporations waste resources. During recessions, bad corporations get into bad trouble, often with severe social consequences. Inadequate incentives for managers and inadequate accountability for boards and managers thus have negative externalities. Regulators play a vital role in exposing weakness, so that market disciplines come to bear sooner rather than later.

Regulatory emphasis is constantly shifting as financial markets evolve and as the macroeconomic environment changes. Regulators try to balance

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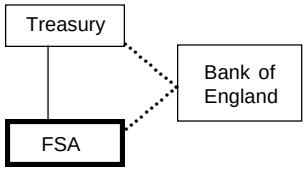
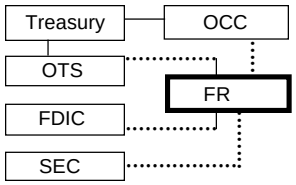
39. See Rogoff (1999). Also see Berlin (2000) for a perspective on the limited role that banks play as share owners.

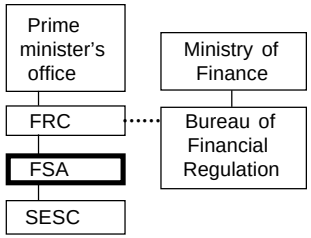
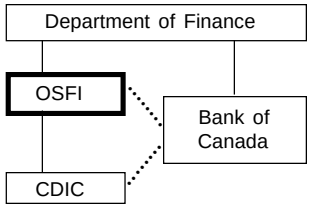
40. See Habib and Ljungqvist (2000) for recent empirical analysis showing that corporate share market values are higher when corporate executives have a larger ownership stake.

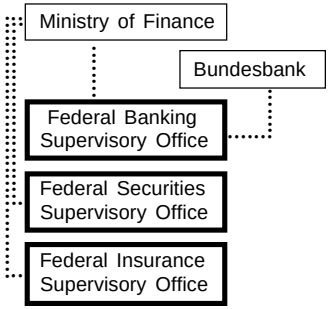
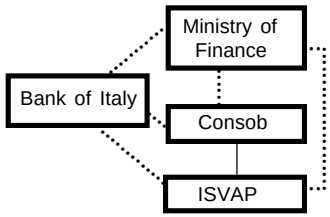
Table 2.10 Financial-sector regulation, G-10 countries, 2000

Country and supervisory structure	Financial institutions and their supervisors: Retail banking	Wholesale banking	Securities	Insurance
	Financial conglomerates **Financial Services Authority (FSA) = umbrella supervisor**			
United Kingdom 	**FSA** • Commercial banks (Securities and Investments Board) • Building societies (Building Societies Commission) • Friendly societies (Friendly Societies Commission) • Pensions and life insurance, etc. (Personal Investment Authority)	**FSA** • Investment funds • Unit trust groups • Pension funds • Merchant banks • Clearing houses • Venture capital	**FSA** (Securities and Futures Authority) • Primary issuers of securities • Stock exchanges • Stockbrokers	**FSA** (Insurance Directorate of the Treasury) • Insurance companies • Insurance brokers
	Financial holding companies **Federal Reserve (FR) = umbrella supervisor**			
United States 	• National banks **(OCC)** • State banks: Members **(FR)** Nonmembers **(FDIC)** • Cooperative banks **(FDIC/FR)** • Insured industrial banks **(FDIC)** • Thrift holding companies **(OTS)** • Savings banks **(OTS/FDIC/FR)** • Savings and loan associations **(OTS)** • Edge Act corporations **(FR)**	**Federal Reserve** • Investment banks • Finance companies	**Securities and Exchange Commission** • Primary issuers of securities • Stock exchanges • Stockbrokers • Investment advisors • Mutual funds • Public utility holding companies	**Regulated by States** • Insurance companies • Insurance brokers

(*table continues next page*)

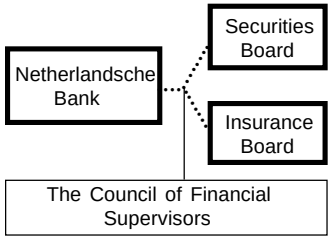
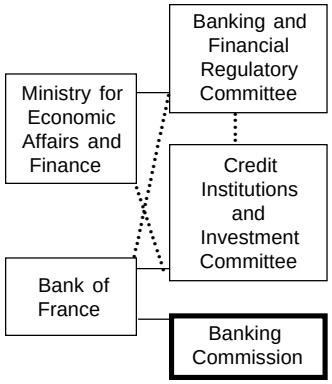
Table 2.10 Financial-sector regulation, G-10 countries, 2000 (*continued*)

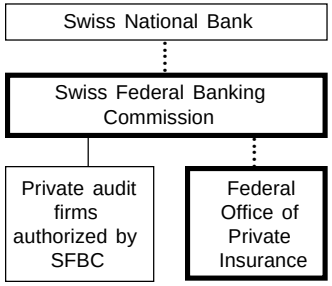
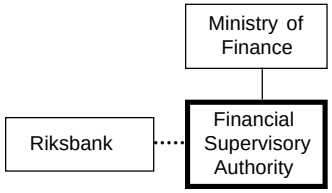
Country and supervisory structure	Financial institutions and their supervisors			
	Retail banking	**Wholesale banking**	**Securities**	**Insurance**
Japan	***Financial holding companies*** **Financial Supervisory Authority (FSA) = umbrella supervisor**			
	**FSA** • City banks • Regional banks • Trust banks • Long-term credit banks	**FSA** • Investment banks • Asset managers	**FSA** (Securities and Exchange Surveillance Commission) • Primary issuers of securities • Stock exchanges • Stockbrokers • Pension funds	**FSA** • Insurance companies • Insurance brokers
Canada	***Financial holding companies*** **Office of the Superintendent of Financial Institutions (OSFI) = umbrella supervisor**			
	**OSFI** • Banks (previously Office of the Inspector General of the Banks) • Trust and loan companies	**OSFI** • Cooperative credit associations • Fraternal benefit society • Pension funds (previously Department of Insurance)	**Regulated by provinces** • Primary issuers of securities • Stock exchanges • Stockbrokers • Asset managers	**OSFI** • Insurance companies (previously Department of Insurance) • Insurance brokers

Country and supervisory structure	Financial institutions and their supervisors: Retail banking	Wholesale banking	Securities	Insurance
Germany 	***Financial holding groups*** **Federal Banking Supervisory Office (FBSO) = umbrella supervisor**			
	FBSO • Universal banks • Savings banks • Securities banks	**BSO** • Other financial institutions (e.g., management, foreign currency dealings) • Financial enterprises (e.g., leasing, organizations, credit card companies, investment advisors)	**FSSO** • Primary issuers of securities • Stock exchanges • Stockbrokers • Asset managers • Pension funds	**FISO** • Insurance companies • Insurance brokers
Italy 	***Bank foundations*** **Ministry of Finance = umbrella supervisor**			
	Bank of Italy • Commerical banks • Savings bank • Securities banks	**Bank of Italy** • Asset managers • Open-end investment companies (SICAVs)	**Consob** • Primary issuers of securities • Stock exchanges • Stockbrokers	**ISVAP** • Insurance companies • Insurance brokers

(*table continues next page*)

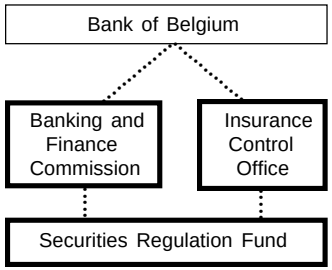
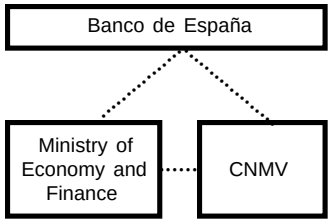
Table 2.10 Financial-sector regulation, G-10 countries, 2000 (*continued*)

Country and supervisory structure	Financial institutions and their supervisors: Retail banking	Wholesale banking	Securities	Insurance
The Netherlands 	***Financial conglomerates*** **Council of Financial Supervisors = umbrella supervisor** **Netherlands Bank** • Credit institutions (universal banks, cooperative banks, security credit institutions, mortgage banks)	**Netherlandsche Bank** • Investment institutions (securities issuing and trading—primary and secondary markets)	**Securities Board of the Netherlands** • Stock exchanges • Stockbrokers	**Insurance Board** • Insurance companies • Insurance brokers
France 	**Banking Commission** • Ensuring that credit institutions (and investment firms since the Financial Activity Modernization Act of 1996) comply with laws and regulations • Execute instructions regarding all off-site monitoring and on-site supervision **Banking and Financial Regulatory Committee** • Formulates general regulations for credit institutions and investment firms (capital adequacy requirements, accounting rules, etc.) **Credit Institutions and Investment Committee** • Authorizes and examines financial institutions, except for those within the competence of the Banking Commission		**Commission des Operations des Bourse** • Primary issuers of securities • Stock exchanges • Stockbrokers	**Commission de Contrôle des Assurances** • Insurance companies • Insurance brokers

Country and supervisory structure	Financial institutions and their supervisors: Retail banking	Wholesale banking	Securities	Insurance
Switzerland 	***Large banking group*** **Swiss Federal Banking Commission (SFBC) = umbrella supervisor**			
	SFBC	**SFBC**	**SFBC**	**Federal Office of Private Insurance**
	• Universal banks • Savings banks	• Investment banks • Asset management companies • Investment funds	• Primary issuers of securities • Stock exchanges • Stockbrokers • Mortgage bond business	• Insurance companies • Insurance brokers
Sweden 	***Financial holding company groups*** **Financial Supervisory Authority = umbrella supervisor**			
	Credit Market Department	**Credit Market Department**	**Securities Market Department**	**Insurance Market Department**
	• Commercial banks • Savings banks • Friendly societies	• Investment funds	• Primary issuers of securities • Stock exchanges • Stockbrokers	• Insurance companies • Insurance brokers

(*table continues next page*)

Table 2.10 Financial-sector regulation, G-10 countries, 2000 (*continued*)

Country and supervisory structure	Financial institutions and their supervisors: Retail banking	Wholesale banking	Securities	Insurance
Belgium  	***Bank holding companies*** **Banking and Finance Commission = umbrella supervisor** **Banking and Finance Commission** • Commercial banks • Savings banks • Securities banks	**Banking and Finance Commission** • Asset management firms • Investment funds **Securities Regulation Fund** • Other investment firms and credit institutions (institutions participating in regulated off-exchange market in strips and Treasury certificates)	**Banking and Finance Commission** • Primary issuers of securities • Stock exchanges • Stockbrokers	**Insurance Control Office** • Insurance companies • Insurance brokers • Mortgage companies • Pension funds
Spain  	***Bank holding companies*** **Banco de España = umbrella supervisor** **Banco de España** • All credit institutions (commercial banks, savings banks, credit cooperatives, official credit institutions, finance, factoring, and leasing companies, mortgage-loan companies, etc.) • Interbank, foreign exchange, and book-entry public debt markets		**Comision Nacional del Mercado de Valores (CNMV)** • Primary issuers of securities • Stock exchanges • Stockbrokers • Venture capital (companies and funds)	**Directorate General Insurance** (Ministry of Economy and Finance) • Insurance companies • Pension funds

Country and supervisory structure	Financial institutions and their supervisors: Banking	Securities	Insurance
Supranational (EU) **BAC/IC/HLSS** Conglomerates: Regulation of prudential supervision	**Banking Advisory Committee (BAC)** • Formulates standards for prudential supervision **Banking Supervision Committee (BSC)** • Systemic risk monitoring	**High Level Securities Supervisors Committee (HLSS)** • Coordination of securities market supervision **Securities Contact Committee** • Regulation and implementation of securities admission	**Insurance Committee (IC)** • Formulates standards for prudential supervision
International **Joint Forum** Conglomerates: Supervision & regulation: Best practices **FSF** Coordination across supervisors of various functions	**Basel Committee** • Supervision and regulation, best practices	**International Organization of Securities Commisison (IOSCO)** • Supervision and regulation, best practices	**International Association of Insurance Supervisors (IAIS)** • Supervision and regulation, best practices

Notes: See appendix B for more information. Boldface type indicates senior or oversight supervisor; normal type indicates adjunct or front-line supervisor; solid line indicates direct responsbility to the senior-ranking authority; dotted line indicates coordination in supervisory activities.

(*table continues next page*)

Table 2.10 Financial-sector regulation, G-10 countries, 2000 (*continued*)

Glossary of names: United Kingdom: FSA = Financial Services Authority. United States: FR = Federal Reserve; OCC = Office of the Comptroller of the Currency; FDIC = Federal Deposit Insurance Corporation; SEC = Securities and Exchange Commission; OTS = Office of Thrift Supervision. Japan: FRC = Financial Reconstruction Commission; FSA = Financial Services Agency; SESC = Securities and Exchange Surveillance Commission. Canada: OSFI = Office of the Superintendent of Financial Institutions; CDIC = Canada Deposit Insurance Corporation. Germany: FBSO = Federal Banking Supervisory Office; FSSO = Federal Securities Supervisory Office; FISO = Federal Insurance Supervisory Office; BSO = Banking Supervisory Office. Italy: Consob = Commissione Nazionale per le Societa e la Borsa; ISVAP = Instituto per la Vigilanza sulle assicurazioni private e di Interesse colletivo. Switzerland: SFBC = Swiss Federal Banking Commission. Spain: CNMV = The Comision Nacional del Mercado de Valores. Supranational: BAC = Banking Advisory Committee; BSC = Banking Supervision Committee; IC = Insurance Committee; HLSS = High Level Securities Supervisors Committee. International Dimension: FSF = Financial Stability Forum. IOSCO = International Organization of Securities Commission. IAIS = International Association of Insurance Supervisors.

Sources: United Kingdom, Bank of England, http://www.bankofengland.co.uk, Financial Services Authority, http://www.fsa.gov.uk; United States, Board of Governors of Federal Reserve System, http://www.federalreserve.gov; Japan, Bank of Japan, http://www.boj.or.jo, Financial Reconstruction Commission http://www.fsa.go.jp/frc/indexe.html, Financial Services Agency, http://www.fsa.go.jp; Canada, Bank of Canada, http://www.bank-banque-canada.ca, Office of the Superintendent of Financial Institutions, http://www.osfi-bsif.gc.ca/AndreE/index.html; Germany, Deutsche Bundesbank, http://www.bundesbank.de, Federal Banking Supervisory Office, http://www.bakred.de; Italy, Banca d'italia, http://www.bancaditalia.it, Commissione Nazionale per le Societa e la Borsa http://www.consob.it, Instituto per la Vigilanza sulle assicurazioni private e di Interesse colletivo, http://www.isvap.it; The Netherlands, De Nederlandsche Bank, http://www.dnb.nl; France, Banque de France, http://www.banque-france.fr; Switzerland, Schweizerische Nationalbank, http://www.snb.ch/index3.html; Sweden, Sveriges Riksbank, http://www.riksbank.se/default.asp; Belgium, National Bank of Belgium, http://www.bnb.be/sg/index.htm; Spain, Banco de España, http://www.bde.es, The Comision Nacional del Mercado de Valores, http://www.cnmv.es; Supranational (EU), *Institutional Arrangements for the Regulation and Supervision of the Financial Sector,* 2000; International Dimension, Bank for International Settlement, http://www.bis.org; International Organization of Securities Commissions, http://www.iosco.org; International Association of Insurance Supervisors, http://www.iais.org; Financial Stability Forum, http://www.fsforum.org.

the inflexibility of tight surveillance against the need to encourage innovation and growth. The US Securities and Exchange Commission is worried about aggressive accounting by firms and biased reports by securities analysts in an equity environment that prizes steadily higher quarterly earnings.[41] Japanese regulators are preoccupied with opaque interconnections between portfolio institutions, banks, and nonfinancial firms through the keiretsu system. Canadian regulators, reeling from high-profile scandals of managers intentionally misleading investors, are strengthening market discipline through legal penalties aimed at managers and directors of offending firms.

When panic strikes, a securities regulator cannot do much. As the 1987 stock market crash and the LTCM debacle in the fall of 1998 both demonstrated, steep stock and bond price declines can create systemic risks. If severe enough, the wealth effect of falling securities values, and the fear of widespread insolvency, can depress real activity. Flooding the system with liquidity is a central banker's solution—something a securities regulator cannot do.[42] But just as financial supervisors can change the incentive structure to discourage bankers from making risky loans in good times, so securities regulators can pay more attention to incentives on the *demand* side when capital markets are strong.

Prudential Supervision and Innovation—A Footnote

In concluding this discussion of prudential supervision in the G-10, an additional point is worth noting. National regulators face a persistent trade-off between emphasizing financial system safety and soundness while encouraging innovation—in spite of the added risks innovation brings to financial markets. Former US Treasury Secretary Lawrence Summers (2000, 3) has argued by analogy:

> The jet airplane made airplane air travel more comfortable, more efficient, and more safe, though the accidents were more spectacular and for a time more numerous after the jet was invented. In the same way, modern global financial markets carry with them enormous potential for benefit, even if some of the accidents are that much more spectacular. As the right public policy response

41. The problem is illustrated by the divergence since mid-1998 between reported earnings by the Standard & Poor's (S&P) 500 and the after-tax profits of all corporations in the national accounts. Generally, these two series move closely with one another. Between mid-1998 and mid-1999, S&P 500 reported that earnings increased by more than 20 percent while after-tax profits of all corporations increased by less than 5 percent (Chase Bank, US Economic and Policy Research: US Weekly Prospects, Chase Securities, Weekly Newsletter, 5 June 2000, 5).

42. For example, the US Securities and Exchange Commission had no direct role in calming markets in the 1987 or 1998 panics.

> to the jet was longer runways, better air-traffic control, and better training for pilots, and not the discouragement of rapid travel, so the right public policy response to financial innovation is to assure a safe framework so that the benefits can be realized, not to stifle the change.

Accepting Summers's analogy for the international financial system, better-informed supervisors and investors are a necessary part of the financial system framework. Supervisors require more timely information on the risk profiles resulting from positions taken by financial institutions. They also need a better understanding of risk-management systems. Snapshots of an institution's risk profile and risk-management procedures are no longer adequate. In a world where huge bets are quickly made (and possibly lost—as with Barings Bank in 1995 and LTCM in 1998), supervisors must focus on the soundness of banking *systems* for evaluating and managing risk on a daily basis. Some progress has been made in addressing these issues. US banking examiners are extending their information requirements in banking examinations and increasing their involvement in large, complex, institutions.[43] More awareness is also required of the fact that they are national organizations in a world of cross-border capital flows. To a much greater extent, they need a multinational reach. International supervision and coordination among supervisors are the subject of the next section.

International Supervision: A Decentralized Framework

Our analysis suggests that G-10 supervisors have unfinished business. Bank supervisors need to start yesterday; securities regulators can wait until tomorrow. One G-10 member acting alone cannot correct the bias. In good times, the lending business will simply migrate to other G-10 banks. In bad times, financial problems will not stop at the national border. A way has to be found to establish common international standards for the key financial players in order to prevent crises, and to agree on approaches for managing them. The path has already been laid out. In the wake of the bank failures of the past 25 years, bank supervisors have tried to establish such standards. They have done this without creating a new global institution.

The essence of the international framework is decentralization—global rules and design standards without global institutions that are perceived to intrude on national sovereignty. The awkward jargon for this framework is vertical subsidiarity—"think internationally, act nationally." The international thinking is done by a committee of regulators that meets

43. These issues are discussed in Ferguson (1999) and Meyer (2000a).

regularly at the Bank for International Settlements in Basel. The committee establishes principles and standards that are interpreted, implemented, and enforced by national authorities.[44] In this section, we describe these supervisory efforts and their weaknesses. We present our recommendations for addressing these weaknesses in the next chapter.

Basel I

The Basel Capital Accord of 1988 (Basel I)[45] drew the lesson from the financial crises of the mid-1970s that more adequate capital levels in international banks would help reduce the systemic risk of bank failure. The primary goal of Basel I was capital adequacy; other standards were put in place not so much for their own virtue as to defend the primary goal.

Capital adequacy requirements were designed to ensure that individual institutions have the ability to absorb losses, particularly credit losses. Accordingly, a backup system of scoring credit risk was devised that required large amounts of bank capital for some types of loans, smaller amounts for others, and zero for a select list of preferred assets. Reporting requirements were designed to disclose problems and ensure that a troubled bank would take timely steps to restore its capital base in the wake of a loss. The Basel I framework worked tolerably well in limiting the call on the public purse in the G-10 countries—with the notable exceptions of France and Japan. The framework failed to moderate risky bank lending to emerging markets, however.

Basel I was not developed with emerging markets in mind. The original idea behind it was to develop a common supervisory approach to cross-border banking operations. It grew out of political pressure from US lawmakers, who were determined to require international banks operating in the United States to meet US banking standards. Toward this goal, in 1983, Congress passed the International Lending Supervisory Act. US and British banking authorities subsequently agreed on a common target: the adoption of strict common capital-adequacy standards. In 1988, other G-10 governments agreed to go along; voluntary acceptance of the standards throughout much of the rest of the world followed.[46] The rationale for the capital targets was two-fold. The first was to require banks to hold sufficient amounts of capital (8 percent of risk-adjusted

44. The international committee of financial authorities agreed on a common definition of banks' tier-one, or "core," capital; national authorities defined tier-two capital in their own manner, which permitted greater variations in national working definitions and practices.

45. International Convergence of Capital Measurement and Capital Standards (BIS 1988) was prepared by the Basel Committee on Banking Supervision.

46. See Reineke (1998).

assets) to cushion losses on those assets. The second was to dull their appetites for risk; banks with large capital bases would have more to lose if they failed and therefore would take fewer risks.

Rapid change in financial markets soon revealed flaws in the Basel I Accord. In a complex world with numerous sources of risk, it focused heavily on credit risk but overlooked other risks in a bank's portfolio and the correlation between returns on different asset classes. The Basel formula required banks to maintain a fixed amount of capital against each of its asset classes. But the formula did not distinguish the riskiness of the borrower within each class. As a result, one large loan to a low-risk corporate borrower, such as General Electric, would require the same amount of capital as 10 smaller transactions with high-risk borrowers.

The system was also biased toward short-term loans. Loans maturing in less than a year required a 20 percent risk weight, whereas those maturing after more than a year required a 100 percent risk weight. Interbank lending was particularly favored. For example, loans to banks in OECD countries required less capital than loans to private firms in the same countries, creating the anomaly that interbank loans to South Korean banks required less capital than loans to General Electric.[47] This anomaly encouraged banks to shed high-quality assets if the Basel rules required the allocation of more capital than banks thought they needed.

Another weakness was that financial innovators quickly circumvented the Accord. Because short-term loans required less provisioning than long-term loans, banks responded by securitizing their long-term debt portfolios, and lending short-term against the collateral of the newly created asset. This allowed banks to circumvent the capital requirements geared to the terms of the underlying debt. At the same time, the Basel I Accord failed to encourage risk mitigation techniques such as credit derivatives, collateral, guarantees, and on-balance-sheet netting, the flip side of financial innovation. Because off-balance-sheet products were not covered by the Accord, another anomaly appeared when Barings Bank collapsed in 1995. Barings met capital adequacy standards, but collapsed because its systems for managing risk failed; traders were allowed to speculate in futures contracts that did not appear on the balance sheet.

Basel II

Work to overhaul Basel I began in 1995 and produced consultative papers issued in June 1999 and January 2001.[48] These papers have been

47. South Korean banks have had notoriously weak balance sheets because the practice of "directed lending" left them with many poor loans (in making these loans, the banks were expected to follow government objectives rather than creditworthiness criteria).

48. Basel Committee on Banking Supervision (1999, 2001).

the subject of extensive consultation and revision; as a result, the new Accord is expected to be introduced in 2004.[49] The Basel II framework has three parts (pillars): revisions to Basel I minimum-capital requirements; supervisory review criteria; and greater emphasis on market discipline. Broadly, Basel II aims to maintain the level of capital in the system, but achieve better alignment of banks' capital with their risk profiles, and keep up with financial innovation.

To align capital requirements with market realities (the first pillar), Basel II concentrates on the 100 or so largest banks—the type of players listed in table 2.1—and on the holding-company parents of banking groups.[50] Capital requirements will differentiate between an increased number of credit groups or "risk buckets," including claims on governments, other banks, corporations, mortgage-backed securities, and other asset-backed securities.

Basel II originally proposed to use external ratings to set capital charges for a number of these credit risks. Many banks objected, arguing that they assess credit risk better than Standard & Poor's, Moody's, or Fitch/IBCA.[51] Basel II thus proposes two approaches to rating: a standard approach using external ratings, and an "advanced" approach that allows selected banks to use their own internal rating systems. To encourage the development of rigorous internal control systems based on these internal rating systems, Basel II also proposes to levy capital charges for operational risk (the risk of direct or indirect loss resulting from inadequate or failed internal processes, people, and systems, or from external events).

Some critics of this proposal dismiss it as an abrogation of the principle of external, independent monitoring and as "dangerously naïve."[52] But regulators argue that the new capital charge on operational risk should offset this concern. It is also far from clear how cross-national comparisons of rating and internal risk-assessment systems will be made (Engelen 2000). The development by the European Union of its own capital rules could well complicate the international resolution of these issues. Public assurances by EU officials in January 2001, however, indicated that their main concerns are to create a level playing field and avoid regulatory arbitrage (Hargreaves 2001). There is also the significant problem of the procyclical character of risk weights: When a crisis hits, losses are

49. See Berry (2000) for an update in an interview with William J. McDonough, chair of the Basel Committee on Banking Supervision.

50. For obvious reasons, these proposals are addressed to large banks, and simpler capital standards are allowed for small banks that focus on their domestic credit markets.

51. See Ammer and Packer (2000) for an empirical critique of the success of rating agencies in distinguishing risk by sector and region.

52. See Auerback (2001).

incurred or accrued, capital is lost, and loan exposure must be reduced or securities sold to restore the requisite capital-adequacy ratios. A more risk-sensitive framework could amplify volatility.

As the second pillar of Basel II, supervisory review criteria are being beefed up to encourage supervisors to intervene earlier in potential problem situations and to compel banks to align their capital positions with their risk profiles. Bank supervisors will be authorized to require banks to hold capital in excess of minimum requirements if they have concerns about general management, overall strategy, risk-management performance, or the macroeconomic environment. Of course, if one G-10 supervisor imposes higher capital requirements in isolation, the same disparity will emerge that presaged Basel I: Some banks will be disadvantaged in the international marketplace and will loudly complain that excessive supervision is driving business to their competitors. Hence, close international cooperation among supervisors is critical.

To implement the third pillar, market discipline, banks will be required to make fuller, more timely disclosure of capital adequacy and the risks to which that capital is exposed. A number of measures are being studied that might help supervisors evaluate bank performance, such as comparisons of uninsured deposit interest rates, subordinated debt yields, and equity prices. The idea is that these yields and prices might alert supervisors to market perceptions of risk. Of course, market perceptions are only as good as market information. More direct and controversial ways to reinforce market discipline would dramatically increase public disclosure of bank positions and risk management systems.

Many questions are still outstanding about how to resolve the technical details of capital requirements and whether the requirements will achieve their intended goal of better assessment and mitigation of the risks in banks' portfolios. There is no substitute for skilled supervisors. The intricacies of effective design and implementation suggest that supervisors need to be highly competent technically, knowledgeable about banking, portfolio characteristics, and the factors that influence bank exposure to credit risk (Mishkin 2000). And they must be aided by vigilant shareholders, market forces, and transparency of information.[53]

Standard setting at the global level is desirable, but ultimately, the effectiveness of these efforts will be tested at the national level, especially in times of systemic financial distress. Here the record of Basel I was not a bright, shining success. Japanese banking regulators have traditionally allowed banks to include real estate and securities in their capital base. When the value of these assets plummeted in the early 1990s, regulators allowed banks to continue valuing these depreciated (and often bankrupt) assets at their old, inflated levels. Japanese authorities

53. Benedict Roth, Complacency Towards Catastrophe, *Financial Times*, 23 January 2001.

insisted, until the mid-1990s, that eroded capital bases could be rebuilt in a market-driven fashion. They rightly foresaw that huge loan losses would undermine public support for the ruling party and require a politically unpopular bailout.

Japanese foot dragging on Basel I was the worst,[54] but not unique. Other examples can be found of "politically mandated forbearance." The Federal Reserve Bank of New York held important hands during the LTCM crisis of 1998. Mexico is still resolving the banking crisis that erupted in 1995; South Korea has not yet closed the insolvent banks that behaved so badly before the crisis of 1998. In the aftermath of a crisis, national regulators cannot always be relied upon to discipline politically powerful bankers.[55] One of the little-noticed consequences of these differing approaches is that those banks with strong regulatory systems received an implicit "export subsidy" for their services. US banks, which had not engaged extensively in emerging-market lending in the 1990s, were better positioned than their German and Japanese counterparts to expand their international assets in the wake of the crises.

Other Financial Forums

The Basel model of vertical subsidiarity has already been extended to other financial regulatory bodies. In 1993-94, the BIS established a Tripartite Group of Banking, Insurance, and Securities Regulators. In 1994-95, the BIS increased its cooperation with the International Organization of Securities Commissions, when the two organizations issued parallel papers on guidelines for national regulators concerning risk management and disclosure of derivative trades. In 1996, a permanent Joint Forum on Financial Conglomerates was established to examine supervisory issues and develop working arrangements among the different functional supervisors of conglomerate institutions that offer combinations of banking, securities, and insurance products. Draft papers on the supervision of conglomerates were released for comment in 1998, applying capital-adequacy principles to these groups, and providing guidelines both for assessing the integrity and competence of top managers and for sharing assessments between regulators.

In 1997, the Basel Committee on Banking Supervision extended its reach beyond capital standards to broader aspects of banking supervision with the publication of the Core Principles for Effective Banking Supervision. In 1999, a wide range of regulatory and standard-setting bodies were gathered under the umbrella of the Financial Stability

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54. See Japanese Banks: Fiddling while Marunouchi Burns, *The Economist*, 27 January 2001, 67-69.

55. See Calomiris (1997).

Forum (FSF), itself established under BIS aegis.[56] The FSF has already issued recommendations for stepped-up supervision and transparency, as well as guidelines for best practices in a number of areas, including offshore financial centers and highly leveraged institutions, or hedge funds.[57]

Conclusion

Although the structural weaknesses in emerging-market economies are widely acknowledged to have been causal factors in international capital-market volatility, this chapter points to the role of large G-10 banking organizations as major suppliers of the most volatile instrument: short-term debt. We have examined evidence of the impact of public safety nets in the G-10 economies—the deposit insurance systems, the prudential supervisory systems, and the lender-of-last-resort functions of central banks—on the incentive structures of these organizations.

Although supervisors in most countries, working nationally and together in the BIS, have made significant efforts to mimic market forces in their prudential supervision, the most sophisticated financial institutions find innovative ways to circumvent the rules. New global regulatory bodies are not about to be created. G-10 national bank regulators should themselves address the short-term debt bias in the international financial system by changing incentive systems. G-10 securities regulators should also take steps to get ahead of the curve, paying close attention to large portfolio swings by institutional investors, particularly in times of crisis. In short, more needs to be done at national and international levels to change the rules of the game. That is the subject of the next chapter.

56. The Financial Stability Forum includes banking, securities, insurance, and accounting regulatory bodies; the OECD on taxation, corruption, and corporate governance; and the IMF.

57. See Martin (2000).