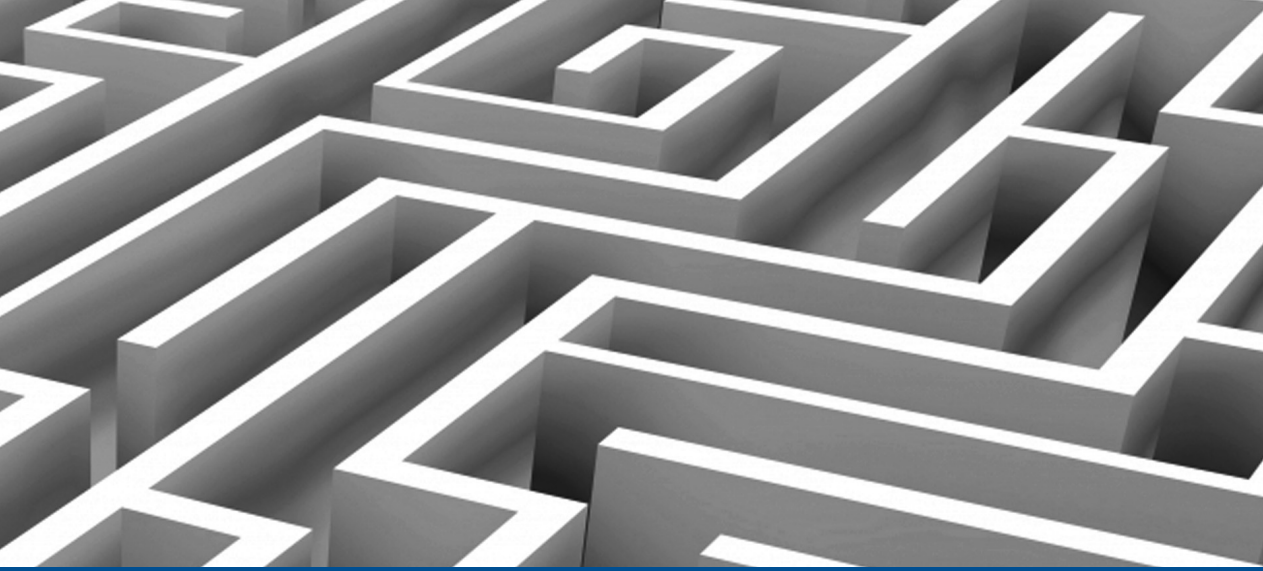

THE FINANCIAL CRISIS: UNDERSTANDING IT TO OVERCOME IT

Marcello Messori

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Print: MyStampa.it

Printed in Milan in September 2009

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Introduction

Developments in the international banking sector in the first decade of the twenty-first century were dominated by the financial crisis that erupted in the subprime mortgage market in United States in mid-2007 and is still under way (as of early May 2009). This crisis, which swept first through the investment banks and large complex financial groups of the economically advanced countries but then hit the global economy, is not an isolated financial episode. In the mid-1990s there was the Mexican crisis. Two years later a severe crisis was triggered in East Asia by the reallocation of capital flows; it spread to Russia, Argentina and Turkey at the turn of the century. As the new century got under way the leading international stock markets were rocked by the bursting of the so-called new economy bubble and by a spate of corporate scandals that also involved many banks; in Italy, the most notable instances were the Cirio and Parmalat bankruptcies, which cost small investors dearly, undermined the reputation of large Italian and foreign banks and exposed severe faults in the effectiveness of auditing firms and rating agencies. It is possible that the financial crises of the last ten years have common origins, and in the case of the current crisis the consensus view is that it is due mainly to international macroeconomic imbalances, a regulatory deficit and the overly expansionary monetary policy stance adopted in the United States from the second half of the 1990s onward to buffer the impact of these crises on the US equity and debt markets. Nevertheless, historical analysis shows that each financial crisis is significant for its specific features, and that the current crisis the gravest in the last seventy-five years will bring about far-reaching changes in the organization and regulation of the banking sector and of the whole economic system.

Between 2001 and 2005 the global economy enjoyed abundant liquidity and very low, sometimes even negative real interest rates. Together with the progressive integration of international markets and the diffusion of an epoch-

making technological innovation (information and communication technology) well beyond the United States, these conditions stimulated worldwide investment and enabled Brazil, China, India and other developing countries to achieve very high rates of growth and others to enter the international spotlight. During the period the world economy expanded rapidly and inflation held at low levels in the developed countries. But these macroeconomic conditions were accompanied by mounting international disequilibria: growing balance-of-trade and public and private sector deficits, above all in the United States, compensated for by capital transfers from developing countries with large trade surpluses. In the United States (but also in some European countries), the resulting relaxation of budget constraints further stimulated borrowing by household to finance the purchase of durable consumer goods and, especially, houses, creating a spiral between rising house prices, rising value of loan collateral and easier mortgage lending.

The three largest countries of the European Monetary Union (Germany, Italy and France, most notably the first two) remained somewhat on the sidelines of these developments owing to their difficulty in adapting to the international markets' new operating set-up, their high propensity to export and the more moderate monetary policy of the European Central Bank.

In the same period the international banking sector, with the partial exception of German banks, underwent profound transformation. It was exposed to more competition in traditional banking business but also introduced major financial innovations, reaping large profits. Meanwhile, it continued to pursue the process of consolidation that had begun in the 1980s in the United States and spread during the 1990s in Europe. Consolidation did not only involve mergers between commercial banks (specializing in traditional retail or corporate activities), but also acquisitions by commercial banks of investment banks or non-bank intermediaries. Consequently, even in the United States, the United Kingdom and other countries without a tradition of universal banks, commercial banks progressively expanded the range of financial services they offered to include high-value-added activities of the kind that once typified other financial intermediaries. These banks thus became large complex financial groups. In the present decade this trend gained pace and also gave rise to new specialized banks as a response to the diminished centrality and profitability of traditional credit activities. Legislative and regulatory change either accompanied these market changes (Europe) or certified them (the United States); especially in the US, the regulatory structure failed to grasp

their nature and to control their course. In the renewed international banking sector, the introduction of information and communication technology went hand in hand with continual financial product innovation. Thanks partly to the abundance of liquidity and low real interest rates, opaque, high-yielding new financial instruments gained ground and conjured up market segments that were regulated lightly if at all and often characterized by low transaction volumes ("thin" markets).

As early as the 1980s, a "financialization" of traditional bank loans had begun with the changeover from the "originate-to-hold" model, where loans were carried on banks' books to maturity or until renegotiation, to the "originate-to-distribute" model, based on the securitization of (a portion of) bank loans and their transformation into tradable assets. In the last decade the changes described above led to the dominance of the originate-to-distribute model but also to a degeneration of its key features. The drastic rise in subprime mortgage lending in the United States and the consequent increase in default rates, which in June 2007 touched off the banking crisis and caused it to spread rapidly from the US mortgage market and embroil many financial intermediaries in all the developed regions of the world, are the outcome of that degeneration.

This essay is divided into four chapters. The first three analyze the five phases of the current crisis. The fourth deals with longer-term problems relating to the designing of new rules that can respond to the ever increasing pace of financial innovation.

The first chapter aims primarily at supporting the argument that the current financial crisis was sparked by the degeneration of the originate-to-distribute model (Section I.1). It draws the perimeter of the first two phases of the crisis, which were characterized by the severity of the problems that emerged in the last quarter of 2007 in the banking sector (Section I.2) and the inability of regulatory authorities and economic policymakers, notably in the United States, to grasp what was new in these developments and to prevent the resulting financial market "failures" (Section I.3). The second chapter analyzes the third and fourth phases of the crisis. The discussion of the events that marked the last four months of 2008 shows that the short-term monetary operations intended to mitigate liquidity hoarding and deleveraging, and ad hoc government measures to avoid systemic banking failure, necessary at they were, were nonetheless not sufficient to attenuate the financial crisis and buffer its recessionary impact on the world economy. Starting in September 2008, the "failures" of regulation and of discretionary State action led to the launching of more complex plans

in all the main economic areas (Sections II.1 II.2). Yet these plans, too, did not produce the hoped-for results (Section II.3).

The third chapter stresses that some progress was seen only after the temptation of returning to the past had been overcome and the different policy alternatives weighed (Section III.1). Hence, in March and April 2009 more complex measures were taken (Section III.2). Leaving aside the anomalies of the Italian case (Section III.3.), the aim of these measures is to restore more orderly market conditions and revive confidence among operators; however, except in some minor respects, these measures do not constitute new rules of the kind needed to lessen the likelihood that the current crisis "can happen again" (to echo the question raised by Minsky (1982) referring to the crisis of 1929-33). Accordingly, the fourth chapter is given over to the measures needed in the medium term to shape the contours of a new regulatory framework. A discussion of the often problematic links between short-run and medium-term interventions (Section IV.1) is followed by an examination of the efforts made in the first four months of 2009 to design new regulatory and supervisory arrangements at international level and within the two leading economic areas (Section IV.2). Even if these arrangements were put in place, various problems and many opportunities would still remain open (Section IV.3).

CHAPTER I

THE BEGINNING AND EARLY PROGRESSION

The beginning and early progression

I.1 Origins of the current crisis

Changes in the US and international banking sector in the last two decades undermined and then annulled the regulating function that banks had theoretically performed through their typical activity of financing an economy characterized by both uncertainty about the future and information asymmetries between borrowers and lenders. In selecting and financing their customers, banks, to use the terminology of Schumpeter (1970, Chapter VII), performed a "social accounting" task that was essential for the orderly working of the economy; and, to use the more recent terminology of Stiglitz and Weiss (1984), this attenuated the information asymmetries and so reduced the probability of market "failures".

Traditional credit activity implies that when a bank lends to a firm or household it makes the realization of its expected profits conditional not only on the terms of the debt contract (interest rates, collateral, etc.), but above all on the solvency of the borrower. Hence, to maximize its actual profits, the bank has to gather accurate information on potential borrowers and select and finance those whose default risk is appropriate relative to the terms of debt contracts. It follows that it is profitable for banks to have more efficient "information technologies" than those of other financial market participants. These technologies consist of, on the one hand, sophisticated screening models based on hard information on borrowers and, on the other, "long-term relationships" that produce soft information (and can degenerate into monopolistic ties). Banks' informational advantage and their loan allocation are considered "common knowledge" in financial markets, and so their lending constitutes a signal disseminating credible and costless information for other market actors. This is why traditional banking activity must be treated as an effective institution of economic (self)regulation. It reduces information asymmetries, increases trust between borrowers, makes

their transactions less costly and lowers the probability of market failures.

These (self)regulatory functions were eroded by two factors. In the last twenty years traditional credit activity, squeezed by intense competition and low interest rates, generated decreasing shares of banks' profits, while increasing returns came from corporate finance and investment banking services for firms and private banking and asset management services for households. Consequently, while bank mergers and expansion of the range of services offered to individual customers made it more economical for banks to employ sophisticated information technologies, the signals transmitted by bank loans became less reliable for other market participants. In this new context, a bank's decision to finance a given firm or household may be ascribed as usual to its assessment of the borrower's solvency, but it may also reflect the bank's aim of gaining a competitive edge to supply more sophisticated, high-value-added services to the same borrower, which can make it advantageous to grant a loan which in itself would be too risky. In the scandals like those involving Enron or Cirio, some banks even managed to make good on their credit exposures when companies' bankruptcy was imminent, and got a profit, to boot, by supplying high-value added services: the placing of bonds issued by corporate borrowers on the edge of bankruptcy brought the companies fresh funds that were used in part to repay bank loans.

Nevertheless, expanding the range of activities does not eliminate but, at most, only weakens the function performed by banks in (self)regulation of the market. The fact that loan allocation may be affected by factors other than or even conflicting with informed, effective screening of potential customers "dirties" the signals transmitted by individual banks but does not eliminate them, not least because the other market participants have no better sources of information. What ultimately killed the reliability of these signals and thereby compromised the regulatory role played by the banking sector was the second factor, the spread of the originate-to-distribute model and its degeneration.

In the pure form of the originate-to-distribute model, some of the loans on a bank's books can be turned into negotiable securities through "securitization". A "special purpose vehicle" is created and buys the loans at a discount to their contractual value; since it essentially has no capital, it finances itself by issuing bonds of equivalent amount and maturity. The special purpose vehicle must be independent of the originating bank and must not carry on other activities. The riskiness of the bonds issued (asset-backed securities: ABSs) therefore depends

on the riskiness of the loans securitized, but ABSs are traded at prices determined in part by buyers' and sellers' internal valuation models and in larger part by the assessments of rating agencies. When a bank grants a loan that it intends to securitize later, its expected returns depend only indirectly on the terms of the debt contract and the expected solvency of the borrower; they depend directly on the risk valuation and the consequent price that the market will assign to the ABSs. This reduces the bank's incentive to use its costly "information technologies" for careful selection of borrowers.

This securitization procedure is subject to restrictions that make it less advantageous for banks to behave opportunistically but lead to other problems. Ordinarily, each transaction involves a portfolio of loans that is divided into tranches with decreasing risk of default, and the purchasers of the different tranches take on the potential losses. The originating banks tends to keep the riskiest tranche on its own balance sheet. The potential buyers of the other high-risk tranches have less information about the quality of the securitized portfolio and distrust the originating bank's signals, even if it has taken the riskiest tranche. This can trigger a mechanism typical of situations with information asymmetries between sellers and buyers: a large discount in the demand prices ("underpricing"), which weighs on the terms of issue of asset-backed securities. If this mechanism leads to lower demand prices for the intermediate tranches of the portfolio than the originator banks' lowest supply prices, we have a securitization market failure. The banks cannot remove a part of their stock of outstanding loans from their balance sheets, reduce their capital requirements proportionately and so increase their expected returns. The market cannot absorb (a part of) the credit risks, distributing them more widely.

The degeneration of the originate-to-distribute model during the current decade, unchecked by meaningful regulatory constraints, staved off underpricing for a while, but at the cost of transferring abnormal risks to savers. It is worth noting three aspects of this degeneration, all of them abetted by low real interest rates and the excess of liquidity in circulation (see also Mizen 2008).

First, in order to reduce the risk that potential buyers assigned to the first tranches of securitized portfolios, banks repackaged tranches with different risks into new portfolios. The resulting structured bonds ("collateralized debt obligations": CDOs) incorporated already diversified portfolios of asset-backed securities - for example, residential mortgage-backed commercial paper, residential mortgage-backed securities, and asset-backed commercial paper - and

so further enhanced the degree of diversification and, under the assumption of independent risks (later revealed to have been arbitrary), the quality of the financial instruments offered. The same method then generated a chain of additional structured products (for example, CDO^2 or CDO to an even higher power) based on derivatives and on derivatives of derivatives.

Second, this securitization procedure strengthened and distorted the role played by rating agencies. Entrusted with making independent public assessments of ever more complex chains of derivative products, rating agencies became crucial in determining the prices of these products. At the same time, these agencies informed their clients of their risk-assessment standards for structured products, thereby indicating how to combine packages of underlying assets with different degrees of risk in order to win a triple A or at least investment-grade rating. The resulting production of triple A paper ended a shortage on the financial markets. An abnormally high percentage of CDOs deriving from subprime mortgages won a triple A rating (some 80%; Table 1). Some of this paper was also sold in retail markets and ended up in the portfolios of almost all types of savers.

Table 1

Mortgage types by year of origination

	FHA/VA (1)		Conforming		Jumbo		Subprime		Alt-A		HEL (2)		Total
2001	175	8%	1265	57%	445	20%	160	7%	55	2%	115	5%	**2215**
2002	176	6%	1706	59%	571	20%	200	7%	67	2%	165	6%	**2885**
2003	220	6%	2460	62%	650	16%	310	8%	85	2%	220	6%	**3945**
2004	130	4%	1210	41%	510	17%	530	18%	185	6%	355	12%	**2920**
2005	90	3%	1090	35%	570	18%	625	20%	380	12%	365	12%	**3120**
2006	80	3%	990	33%	480	16%	600	20%	400	13%	430	14%	**2980**
2007	101	4%	1162	48%	347	14%	191	8%	275	11%	355	15%	**2430**

Estimates of Subprime RMBS Issuance by Rated Tranche ($Bn)

	AAA		AA		A		BBB		BB/Other		Total
2005	505	81%	60	10%	31	5%	22	4%	7	1%	**625**
2006	484	81%	57	10%	30	5%	22	4%	7	1%	**600**
2007	156	81%	18	9%	10	5%	7	4%	2	1%	**193**

Notes: (1) FHA: Federal Housing Administration loans; VA: US Department of veterans affairs;
(2) HEL: Home equity loans.
Source: Greenlaw et al. 2008.

Third, new vehicles called structured investment vehicles (SIVs) and conduits were created for securitizing and structuring bank loans. These vehicles too were basically without capital, but unlike the earlier special purpose vehicles they issued securities with a shorter maturity than their underlying assets (residential mortgage-backed securities and asset-backed commercial paper); on the other hand, SIVs and conduits were able to cover their own liabilities through access to short-term credit lines with banks, including the originators. Although the originating banks did not include the new vehicles in their consolidated financial statements and hence did not alter their capital ratio, they retained de facto ownership of them and incorporated the gains and covered the risks. This mechanism allowed the introduction of new risky assets in the financial market without a corresponding increase in banks' capital requirements.

It was argued in defense of such innovations that they maximized risk diversification in the financial markets. Actually, as indicated by the higher default rates on securitized loans than on other loans with comparable risk, these innovations induced banks to minimize screening of their own borrowers. In addition, as shown by the abnormal percentage of structured products with a triple A rating in the US market in mid-2007, they enabled both the originators and the purchasers of securitized tranches (investment banks, hedge funds and commercial banks as well) to conceal the risk and to profit from large spreads between the interest rates on the original loans and those on the derivatives with a high rating. Lastly, as revealed by the course of the crisis and the high percentage of ABSs that remained on the books of banks and other intermediaries, the new vehicles sought to diversify what in reality were correlated risks and did not enhance the efficiency of the financial sector (Duffie 2007; Greenlaw et al. 2008).

The degeneration of the originate-to-distribute model enabled US investment banks and many European commercial banks (that is, the large complex financial groups) to expand their balance sheets, compress their capital and operate with extraordinarily high leverage. Together with regulatory avoidance and the taking of high correlated risks, this led to maximization of banks' short-term returns. This balance sheet structure and the associated risk indicators are show in Table 2. The most significant results to emerge in this regard are two (see Pierobon 2009 and Barucci and Pierobon 2009): the strong correlation between the level of leverage and bank profitability; and the abnormally high percentage (on average, nearly 45%) of financial securities (including derivatives and trading instruments) with respect to traditional assets (customer loans and sovereign debt securities) in the balance sheets of the leading US investment banks and some major European banks.

Table 2

Balance sheet data

	Credit Losses & Write Downs (mld €)	Ricapita-lizations (mld €)	Assets (mld €)	Leverage 2007	Credits/ Assets 2007	Loans/ Deposits 2007	ROE 2007	CDS aug 2008	Price aug 2008
Citigroup	47,9	81,2	2188	19,3	35%	92%	3%	1225	36,54
JP Morgan	14,5	31,8	1562	12,7	22%	69%	12%	492	83,93
Bank of America	19,5	39,8	1716	11,7	50%	107%	10%	794	67,58
Wells Fargo	10,5	29,8	575	12,0	70%	116%	17%	910	97,1
Wachovia	68,8	7,9	783	9,8	61%	107%	9%	1649	89,62
Average	**32,2**	**38,1**	**1365**	**13,1**	**48%**	**98%**	**10%**	**1014**	**75,0**
Bear Sterns	2,3	n.s.	395	33,5	n.s.	n.s.	2%	n.d.	n.d.
Goldman Sachs	5,1	14,5	1120	22,4	n.s.	n.s.	23%	379	83,04
Lehman Brothers	11,6	9,9	691	30,7	n.s.	n.s.	19%	822	19,81
Merrill Lynch	40,5	20,8	1020	31,9	n.s.	n.s.	-24%	756	32,15
Morgan Stanley	15,3	17,6	1045	33,4	n.s.	n.s.	10%	693	57,63
Average	**15,0**	**15,7**	**854**	**30,4**			**6%**	**663**	**48,2**
Unicredit	3,1	7,2	1022	16,4	56%	147%	11%	570	57,88
Deutche Bank	9,3	4,3	2020	52,5	9%	41%	17%	517	27,54
UBS	34,7	23,8	1372	52,0	22%	61%	-9%	1098	22,69
RBS	12,4	35,0	2587	20,8	44%	122%	8%	1233	40,19
HSBC	23,7	3,5	1599	17,0	42%	90%	15%	611	75,19
Barclays	4,6	19,0	1670	37,8	28%	94%	16%	1184	50,67
BNP Paribas	4,1	2,6	1694	28,5	26%	128%	14%	658	37,44
Credit Agricole	6,9	8,9	1541	21,2	41%	130%	9%	1035	49,33
Société Générale	6,0	8,2	1072	34,3	31%	123%	5%	907	29,03
Banco Santander	n.d.	7,0	913	14,0	62%	193%	15%	683	55,04
ING	7,5	13,1	994	37,1	53%	100%	14%	1299	64,69
Average	**11,2**	**12,1**	**1499**	**30,1**	**38%**	**112%**	**10%**	**890**	**46,3**

Note: prices and CDS have basis on 2/7/2007.
Source: Pierobon F., 2009.

The degeneration of the originate-to-distribute model also produced a proliferation of increasingly complex and opaque structured securities traded on increasingly thin markets. The chains of derivatives further loosened the links between the risks of the original bank loans, the market prices of the resulting securities and the advantageousness of securitization. The prices of the various mortgage-backed securities, collateralized debt obligations and so forth reached excessive heights owing to the interaction of at least four factors: the conflict of interest of rating agencies; the mechanism typical of multilevel financial chains whereby the price of an asset at a given level is based on the prices (included the expected prices) of the correlated assets at lower and higher levels; a systematic underestimation of counterparty, liquidity and leverage risks induced by a lack of transparency on the underlying risks, by an overly lax macrofinancial context and by speculative behavior; and pricing of numerous, non standardized and thinly traded securities on the basis of valuation models rather than market values (mark to model rather than mark to market). The result was a close complementary relationship between banks and financial markets in which banks played the pivotal role both in the traditionally bank-centered systems (continental Europe) and in the market-based systems (the United States and the United Kingdom). At the same time the banks lost any ability to perform the Schumpeterian role of market (self)regulation.

I.2 The crisis explodes

To understand the dynamics of the current crisis of the international banking sector, along with the degeneration of the lending model we have to consider how the rise in defaults in one segment of the US mortgage market —admittedly a fast-growing segment, whose share had risen to 12% of the total — led within the span of twenty-three months to: a collapse of confidence in international financial markets, extreme strains in interbank interest rates, an about-face from high leverage to chaotic deleveraging, gaping holes in the balance sheets of investment banks and many new commercial banks, collapses in the share prices of bank and other financial institutions and dramatic declines in the stock markets of the industrial countries, failures of important US and European banks and non-bank intermediaries, large-scale government intervention in the financial markets, a severe recession or sharp slowdown in economic activity throughout the world, the threat of massive nationalizations, and an urgent need for new programs of public intervention and new rules. The rest of chapter

I will examine the two phases of the crisis up to September 2008 (see also Spaventa 2008). Chapter II will treat the third phase (October through December 2008) and fourth phase (January through mid-March 2009), which oscillated between systematic State intervention and ad hoc rescues.

The loose macro-monetary conditions of the first five years of the century aggravated the structural imbalances of the US economy (trade deficit, government and household-sector deficits, further polarization of the distribution of income and wealth). At the same time, however, they induced market participants to underestimate the financial risks and investment banks and large complex financial groups to aggressively exploit the opportunities for speculation that financial innovation had created in order to circumvent the constraints on standard securitizations and make up for the decline in the profitability of traditional banking activities. In the first half of 2007 these tendencies were still facilitated by inadequate regulation. In the United States the changeover to Basel 2 had yet to be implemented, while the international accounting standards (IAS) were being partially introduced, with their rules for calculating various balance sheet items at "fair value" (mark to market or, in it is absence, mark to model). The regulatory regime was very fragile, or non-existent, for investment banking and the activities of other non-bank intermediaries. In Europe, the adoption of Basel 2 was still too recent to allow the new capital requirements and other standards to be calibrated to the expanding non-traditional activities of the major commercial banks. And, nearly everywhere, financial market supervision underestimated the various types of risk (liquidity risk first and foremost). In short, the field was open for behavior to side-step market rules.

This explains why the explosive growth in the granting and securitization of subprime mortgages and other high-risk loans, with its promise of extending financial services to US households that had not had access to them before and of limiting the related risks and expenses through diversification, was accompanied by opportunistic use of the new financial instruments. As long as the process proceeded without a hitch, subprime mortgages and other high-risk lending and the markets in the associated financial derivatives (residential mortgage-backed commercial paper, residential mortgage-backed securities, CDOs, CDO^2s, etc.) expanded at a blistering pace in a regulatory void. And investment banks and the large complex financial groups more and more closely combined the functions of loan origination, broker-dealer activity on behalf of their customers, and capital management of proprietary assets swollen by high leverage.

As noted, the process was pushed to extremes, laden with conflicts of interest. Originating banks and investment banks involved in securitizations maintained close but opaque ties with the related structured investment vehicles and conduits, not including them in their own balance sheets but appropriating the gains and guaranteeing refinancing in the event (deemed improbable) of illiquidity. As soon as the first cracks appeared, an avalanche developed and soon came crashing down on all the financial markets.

Until the first half of 2006 the expansion of prime and subprime mortgage lending boosted real estate prices, enhanced the value of the collateral on these loans and pushed up the prices of the assets deriving from their securitization. In conjunction with the abundance of liquidity, this eased the constraints on procuring funds for the purchase of new derivative instruments and drove the broker-dealer and capital management activities, involving a conflict of interest, of the investment banks and large complex financial groups. Abnormally high expected returns prompted many international financial intermediaries to buy structured bonds based on US mortgages or high-risk assets. Meanwhile, the continual rise in house prices, the persistently loose macro-monetary environment and the supply of mortgage loans with very low initial installments charges ("teaser" rates) increased many borrowers' propensity to risk, thereby supporting the demand for mortgages and investors' appetite for speculative ventures. As in the classic Ponzi scheme (Minsky 1975), the poorest borrowers covered their financial expense by refinancing (Gorton 2008); and the lengthening of the chain of structured products enabled these to be sold, through appropriate combinations of underlying assets, not only to professional investors but also in the retail financial markets of the United States and other economically advanced countries.

Neither regulators nor market participants appeared to be aware of the fragility of the situation until, between 2005 and 2006, the US Federal Reserve raised its reference interest rates back to about 5% (for an exception, Rajan 2005). This monetary policy signal caused a slowdown in the growth of US house prices and of subprime lending (2006), which was sufficient to increase the default rates on subprime mortgages and to trigger a perverse spiral in the subprime mortgage market and contiguous high-risk credit segments (first half of 2007; Table 3 and Figure 1). It was thus revealed that the prices of derivative instruments had been based on a systematic underestimation of the risks, for at least three reasons: the unfounded hypothesis that the various counterparty and market risks were amply diversifiable; the

illusory belief that the value of collateral could not fall excessively; and the use of valuation models ill-suited to measuring the individual probabilities of default and, above all, the correlations between risks in the event of systemic problems. At the beginning of the summer 2007 a decline in issuance of instruments deriving from the securitization of subprime mortgages and other high-risk loans was followed immediately by a drop in share prices. This slowed the growth of private consumption in the United States and affected households' demand for loans. These difficulties made it plain that the banking sector and non-bank intermediaries involved in the securitizations and the chain of derivative products had used vehicles that were not subject to capital adequacy standards and employed exceedingly high levels of leverage, operating in a regulatory vacuum.

Table 3

Mortgage Exposures 2007

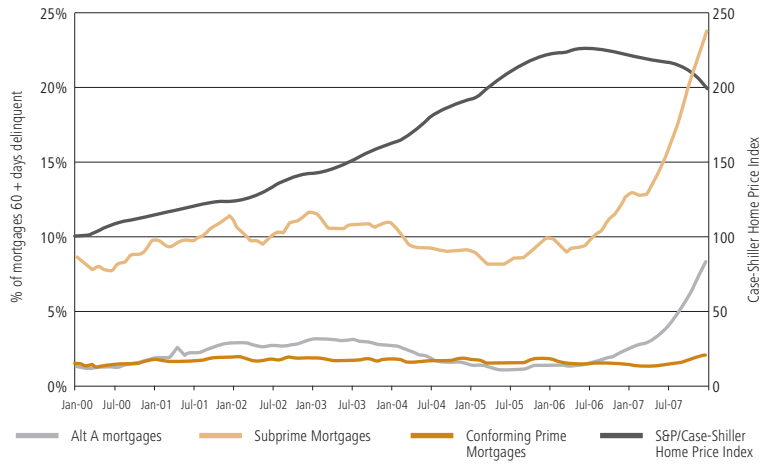
Home Mortgage	Billion ($)
Commercial banks	2.984
Savings Institutions	1.105
Credit Unions	351
Brokers and Dealers	257
Government-Sponsored Enterprises	963
Finance Companies	474
Total	**6.134**

Subprime Mortgage	Billion ($)
US Investment Banks	75
US Commercial Banks	250
US GSEs	112
US Hedge Funds	233
Foreign Banks	167
Foreign Hedge Funds	58
Insurance Companies	319
Finance Companies	95
Mutual and Pension Funds	57
Total	**1.368**

Source: Greenlaw at al. 2008

Figure 1

Mortgage deliquencies and home prices



Sources: First American Core Logic, International Quality and Productivity Center

In August 2007 these critical weaknesses engendered a crisis of confidence that rocked the international financial markets and created severe liquidity and funding problems (Brunnermeier 2009). The new special vehicles found it difficult not only to sell the bonds deriving from new securitizations but also to roll over the short-term bonds issued to finance previous securitizations; the proof is that some of the related market segments "failed". Notably in the United States, to ease the funding squeeze structured investment vehicles and conduits invoked the clauses of "last resort" financing guaranteed by the banking sector. As a result, the new commercial banks and investment banks had to take substantial portions of the derivatives they had originated onto their balance sheets. This fueled a drive to sell these products, and the supply-side pressure was swiftly transmitted to the entire chain of structured bonds directly or indirectly tied to subprime mortgages and other high-risk loans. Intermediaries and professional investors were transformed from possible buyers into actual sellers, and the fall in demand rapidly spread to the retail markets.

As confidence faded, market participants began to consider the weaknesses and conflicts of interest that they had previously overlooked: the underestimation of the risk of default along the entire chain of structured bonds, functional to the profitability of the banking sector and fed by distorted incentives in executives' compensation; the associated arbitrariness in the

pricing of the same bonds, conditioned by choices made by rating agencies with conflicts of interest and by the inadequacy of the risk measurement models, and reinforced by the thinness of many market segments and consequent resort to marking to model instead of marking to market; circumvention of the rules designed to adapt prudential supervision to the new forms of commercial bank, and the attendant excesses of leverage. This new awareness exacerbated the collapse of confidence and further depressed demand for financial assets directly or indirectly derived from subprime mortgages and other high-risk loans.

The resulting supply overhang caused these instruments, even those rated triple A, to become illiquid or drastically reduced their prices and increased the spreads demanded for a number of financing operations and for insurance coverage. Before the end of the summer of 2007, the liquidity constraints spread to derivatives not correlated with the US mortgage market and to almost all of the financial markets. The euphoria of the years from 2003 to 2006 gave way to overestimation of the financial risks and to savers' flight to liquidity. Table 4 highlights the decline in market values and the surge in risk indicators. The new international commercial banks and older investment banks were caught in a vice: they either had to conceal practically illiquid or excessively depreciated assets in their balance sheets, disguising their inad-

Table 4

Monthly variation of composite stock market indices
Average credit risk yield spread and Goverment 10Y Bond yield

	US			Euro Area		
	Totmarket*	Credit Spread**	Goverment bonds***	Totmarket*	Credit Spread**	Goverment bonds***
Q1 2006	3,01%	1,23%	4,57%	9,71%	0,52%	3,51%
Q2 2006	-2,70%	1,21%	5,06%	-4,88%	0,53%	3,97%
Q3 2006	4,14%	1,30%	4,89%	6,70%	0,67%	3,89%
Q4 2006	5,21%	1,27%	4,62%	6,73%	0,70%	3,77%
Q1 2007	-0,74%	1,20%	4,68%	2,53%	0,65%	4,01%
Q2 2007	4,71%	1,20%	4,85%	6,82%	0,61%	4,35%
Q3 2007	0,49%	1,53%	4,73%	-4,31%	0,88%	4,35%
Q4 2007	-4,13%	1,84%	4,26%	-2,29%	1,12%	4,21%
Q1 2008	-12,10%	2,53%	3,65%	-18,05%	1,73%	3,94%

Notes: * Cumulate excess return ** Average daily spread between Lehman Aggregate Baa and 10Y Gov yields
*** Average of 10Y Gov yield.
Source: Datastream

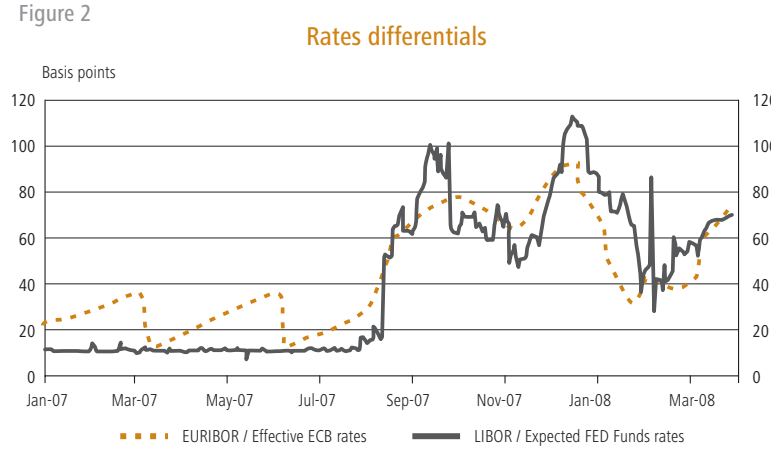
equate capitalization, or dump some of these assets, incurring losses large enough to raise the specter of bankruptcy. Sometimes even this alternative was unavailable and a third course recapitalization was precluded. In the case of Northern Rock, a British bank, the composition of liabilities (centering on mortgage-based products and short-term borrowings) implied that the difficulties of refinancing put the repayment of traditional deposits at risk. This set off a bank run reminiscent of the Great Depression, which undermined Northern Rock's ability to operate. In the case of various US banks, the balance sheet disequilibria proved too severe to be managed by writing down and selling assets and raising fresh funds on the market.

In short, from the autumn of 2007 the international banking sector was caught in the vicious circle of a market liquidity crisis and a funding crisis that heavily affected its capital equilibria, profitability and operating capacity. Investment banks and the large complex financial groups had to absorb or account for many of the products deriving from the securitization and re-internalize a part of their lending. This explains why a shock of limited magnitude, such as the increase in the default rates on US subprime mortgages in the spring of 2007, triggered such a dramatic decline in lending between banks and such a severe and opaque process of deleveraging (Allen and Gale 2007; IMF 2008a). Those phenomena were then aggravated by the fall of the stock markets and by the need to restore compliance with the rules of capital adequacy and accounting transparency.

I.3 Transition to the second phase of the crisis

In our examination of the first phase of the financial crisis, lasting from August 2007 to March 2008, we have stressed three central features: a regulatory 'failure' stemming from persistent arbitrage between regulated and unregulated segments of the financial markets; a liquidity crisis, seen most clearly in the abnormal differentials between three- or six-month interbank lending rates on the one hand (Libor, even if skewed downwards, and Euribor) and the corresponding policy rates in the main currency areas on the other (Figure 2); and the resulting difficulties for banks and other financial intermediaries to procure fresh liquidity (BIS 2008 and IMF 2008b, among others). The solution of the first phase of the crisis might thus have consisted in the adoption of new rules and two shorter-term measures: liquidation of the abundant vol-

Figure 2



Source: Greenlaw at al. 2008

ume of troubled assets on banks' balance sheets at their depreciated market values, and bank recapitalizations large enough both to offset the losses already realized and to cover future asset writedowns, so as to restore capital adequacy and revive mutual trust between intermediaries.

However, this direct course of action, which some large investment banks and new international commercial banks had begun or were about to take, could not have produced a system-wide solution. The collapse of confidence brought in its train the undervaluation of a vast array of financial instruments, whether or not they were links of the chain of products deriving from securitizations of high-risk loans. Adequate writedowns would therefore have increased banks' losses, and this would have exacerbated the liquidity crisis and threatened the very stability of the banking sector in an environment in which capital replenishment to make up for the losses was most unlikely. The difficulties in procuring liquidity were mainly due to the severe constraints that the collapse of confidence had placed on two ordinary sources of fresh capital for banks in difficulty —acquisition by other intermediaries and the issue of new equity for purchase by existing shareholders or the market. What is more, in such critical situations any capital increase would have been perceived by the existing shareholders as a further dilution of the value of their stakes and by the managers as a firing notice.

Not by coincidence, the new equity issues that admitted no delay and which were carried out in late 2007 and the first few months of 2008 by major

US and European banks (UBS, Barclays, Citigroup, Morgan Stanley, Merrill Lynch, etc.) were largely taken up by specific institutional investors notable for their relative lack of interest in short-run returns and, at least until then, their passive stance on matters of governance and management — sovereign wealth funds. Particularly in that period of high raw materials prices, sovereign wealth funds, their treasuries fed by the huge trade surpluses of oil-producing or other developing countries, would have had resources to absorb the new share issues needed to replenish the international banking sector's capital. But since many of these funds were owned by politically problematic governments, they could not have become the largest shareholders of all the main financial institutions of the United States and Europe without causing a tectonic shift in the global balance of power. In other words, however one views such a prospect of "supranational State control" and notwithstanding banks' ample use of hybrid recapitalization instruments (convertible bonds, preference shares, etc.), the intervention of sovereign wealth funds could not be the immediate solution to the problems opened up by the financial crisis (Tables 5a and 5b). For that matter, no country gave serious thought at the time to systematic government purchases of illiquid securities or injections of public capital for intermediaries in distress.

Table 5a

Subprime related credit losses and writedowns at November 2008

Company	Writedown / Loss	Company	Writedown / Loss
Citigroup	$ 42.9B	Crédit Agricole	8.3
UBS AG	38.2	Deutsche Bank	7.7
Merril Lynch	37.0	Wachovia	7.0
HSBC	19.5	Mizuho Financial Group	6.2
IKB Deutsche	16.0	Barclays Capital	5.2
RBS	15.2	CIBC	4.2
Bank of America	14.9	Lehman Brothers	3.3
Morgan Stanley	12.6	Bear Stearns	3.2
JP Morgan Chase	9.7	Goldman Sachs	3.0
Credit Suisse	9.5	Others	149.4
Washington Mutual	9.1	**Total**	**$ 379.2B**

Source: International Quality and Productivity Center

Table 5b

Sovereign Wealth Funds Investments in Listed Stocks

Acquiror Name	Target Name	Investment Date	Value of Investment ($ mil)
GIC-Singapore	UBS	8/2/2008	14400.00
GIC-Singapore	UBS AG	10/12/2007	9760.42
Abu Dhabi Investment Authority	Citigroup Inc.	27/11/2007	7500.00
GIC-Singapore	Citigroup Inc.	15/1/2008	6880.00
GIC-Singapore	Citigroup Inc.	15/1/2008	6880.00
Abu Dhabi Investment Authority	PrimeWest Energy Trust of Canada	7/9/2007	5000.00
China Investment Group	Morgan Stanley	19/12/2007	5000.00
Temasek	Merril Lynch	27/12/2007	4400.00
Kuwait Investment Authority	Dow Chemical Company	10/7/2008	4019.08
Temasek Holdings (Pte) Ltd	Standard Chartered PLC	27/3/2006	4000.00
Temasek	Merril Lynch	27/7/2008	3400.00
Dubai International Financial Centre	OMX AB	29/2/2008	3396.80
Qatar Investment Authority	Credit Suisse	28/1/2008	3000.00
Istithmar	Time Warner	27/11/2006	2000.00
China Investment Co. Ltd.	Fortescue Metals Group	4/2/2008	2000.00
Korea Investment Corp	Merril Lynch & Co. Inc.	15/1/2008	2000.00
Kuwait Investment Authority	Merril Lynch & Co. Inc.	15/1/2008	2000.00
Temasek Holdings	Shin Corp Pcl	23/1/2006	1900.00
Dubai International Financial Centre	Deutsche Bank	16/5/2007	1800.00
Dubai International Financial Centre	London Stock Exchange Plc	17/8/2007	1648.02
Investment Corporation of Dubai	Immobiliaria Colonial SA	11/3/2008	1504.51
Qatar Investment Authority	J Sainsbury	15/6/2007	1400.00
Temasek Holdings	Stats Chippac Ltd	18/5/2007	1083.48
Istithmar	Standard Chartered Plc	6/10/2006	1000.00
Khazanah Nasional Bhd	United Engineers (Malaysia) Bhd	20/7/2001	988.88
Total: 189 sovereign wealth funds investments in listed firms			**$122,650.29**

Source: Bortolotti et al. 2009

This explains why, from the summer of 2007 to the summer of 2008, the effort to contain the crisis was largely entrusted to the monetary policy authorities of the main currency areas - the Fed, the European Central Bank (ECB) and the Bank of England - and to national banking supervisors (including the Fed). The central banks provided large-scale refinancing to the banks in difficulty through last-resort loans (the discount window) and open market operations. The supervisory authorities, acting in agreement with their governments, carried out discretionary rescues of banks on the verge of failure with the avowed aim of averting systemic crises.

The arrangements already in place allowed the European Central Bank to perform its task without institutional discontinuities. The ECB continued to carry out its customary open market operations with banks of various kinds, which pledged different types of eligible collateral for the financing obtained. In response to the crisis, the ECB limited itself to increasing the amount of these loans, reducing their expense in relation to the deteriorated quality of the collateral, and, some months later, lengthening their maturity (up to six months). After an initial phase of caution, which precipitated the crisis of Northern Rock, the Bank of England swung into line with the strategy of the ECB. By contrast, the Fed had to introduce institutional changes (Bernanke 2008a). Before the crisis, most of the commercial banks with liquidity problems had access only to the discount window; open market operations were reserved to leading commercial banks and based on highly liquid collateral. Beginning in August 2007 the Fed therefore sought to encourage use of the discount window by reducing the previous difference between the discount rate and the rates on government securities by three quarters and by extending the length of discount loans to 90 days (renewal upon request provided the borrower was solvent). Subsequently, from December 2007, it conducted bimonthly auctions of loans for a predetermined amount and an original maturity of 28 days (later extended to 90), reserved to a given but large set of commercial banks authorized to pledge collateral with lower degrees of liquidity than those earlier envisaged for the leading commercial banks. Lastly, starting in March 2008 the Fed reserved huge open market operations to leading intermediaries in exchange for types of collateral increasingly linked to the chain of securities deriving from high-risk loan securitizations.

In addition to extending the Fed's supervisory duties over investment banks, these changes increased the convergence among the channels used by the central banks

of the main currency areas to pump temporary liquidity into the banking system (Table 6). In fact, the main economies enjoyed abundant liquidity. Unlike the ECB, which raised its reference rate as late as July 2008 even though signs of recession in Europe pointed to a lessening of inflation pressure, the Fed coupled abundant refinancing with a loose monetary policy (Figure 3). By blurring the distinction between insolvent banks and those in a situation of (temporary) illiquidity and by accepting totally illiquid or greatly depreciated structured securities as collateral, the main central banks altered the functioning of the market and generated "moral hazard" effects. Although in blatant contrast with the rigor that the international organizations had prescribed for the Asian countries in the late 1990s, these extreme measures were justified by the gravity of the crisis under way. However, the remedies checked the symptoms of the disease but did not cure it. Since the refinancing operations were temporary, they did not wipe the severely impaired securities from high-risk assets or others securities whose market value had plunged from banks' balance sheets. They failed, therefore, to make a strong dent in the crisis of confidence and the associated liquidity crisis in the markets, but they did increase hoarding.

The gravity of the illness was confirmed by the numerous cases of failure or near-failure of banks in the United States and in some European countries during the first phase of the crisis, which also manifested themselves in the increase in the spreads on hedging derivatives (credit default swaps: CDSs) and led to more or less thinly disguised public bailouts (Table 7 and Figure 4). Apart from the cases involving banks in the United Kingdom (with the explicit nationalization of Northern Rock), Germany and Switzerland, the most important episode was that of Bear Stearns, a US investment bank, whose bailout ushered in the second phase of the financial crisis (lasting up to September 2008, when Lehman Brothers filed for bankruptcy protection under Chapter 11 of the US Bankruptcy Code). In mid-March 2008, with Bear Stearns' insuperable difficulties in rolling over its debt threatening to bring on its bankruptcy and spawn uncontrollable systemic effects due to the investment bank's far-flung web of connections in unregulated markets, the Federal Reserve, acting in agreement with the Treasury Department, prompted JP Morgan to take over Bear Stearns, including all its debt, at what was basically a token price (even after an upward revision). The Fed backed its "moral suasion" with two very tangible measures: it granted JP Morgan a loan of about $29 billion, backed by $30 billion of Bear Stearns' illiquid assets already incorporated in JP Morgan's balance sheet, and agreed to cover any losses on those assets beyond the first $1 billion.

Table 6

FED main liquidity operations

Federal Reserve

12/10/07 Term Auction Facility: available to all depository institutions in sound financial conditions and eligible to borrow under the primary credit discount window programme.

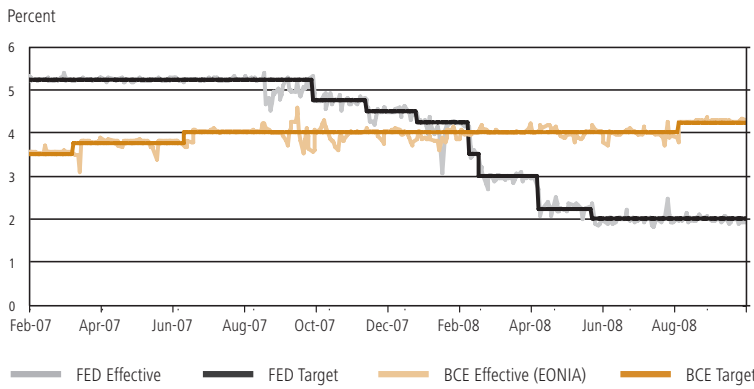
11/03/08 Term Securities Lending Facility (TSLF) : up to $200 bn of Treasury securities to primary dealers guaranteed by other securities including residential mortgage-backed securities.

16/03/08 Primary Dealer Credit Facility (PDCF) : secured loans to primary dealers, making a discount window available to non-depository institutions for the first time since the 1930s.

Sources: Di Noia and Micossi 2009

Figure 3

Target and effective rates in the EU and US areas



Sources: ECB, Euribor, Federal Reserve Bank of St. Louis

Table 7

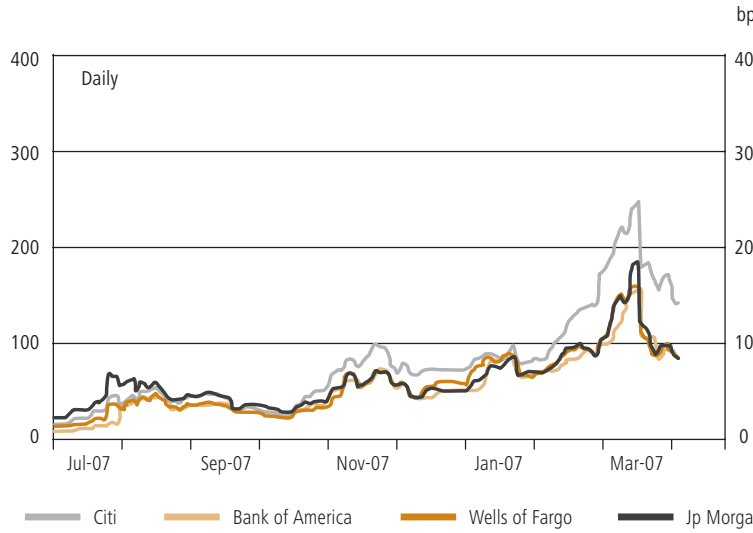
Market share of financial Credit Derivatives

	Protection buyers		Protection sellers	
Banks	67	59	54	43
Hedge funds	16	28	15	31
Pension funds	3	2	4	4
Insurance	7	6	20	17
Corporations	3	2	2	1
Mutual funds	3	2	4	3
Other	1	1	1	1

Source: Di Noia and Micossi 2009

Figure 4

Commercial bank CDS Spreads



Source: Markit, www.financialstability.gov

The Bear Stearns rescue was probably inevitable, though it no doubt could have been the occasion to introduce new transparent rules rather than to reproduce a regulatory 'failure' by recurring to a disguised aid of an individual private bank and forcing Fed's duties. Fed, though formally empowered by Section 13(3) of the Federal Reserve Act to finance different types of institutions, had actually no responsibility for supervising investment banks.

The rescue operation met a generally favorable reception, because in the short term it eased the strains in interbank markets, reassured savers and stemmed the decline in equity and bond markets. However, by June 2008 negative signals had gained sway again, extinguishing every illusion that the crisis was on the way to being solved. This was corroborated by the data provided by the Financial Stability Forum at the beginning of September 2008: although some $500 billion of writedowns and $350 billion of capital increases had been made, the international banking sector still concealed many high-risk assets and needed further recapitalization (of at least $350 billion) to satisfy the capital adequacy requirements. In addition, there was growing concern over the quality of the fresh capital that had been raised, increasingly based on hybrid instruments (Draghi 2008a). This situation caused a new widening both of the differentials

between three- or six-month interbank rates and the corresponding policy rates of the main currency areas and of the spreads on credit default swaps. In a word, it showed that the crisis of confidence within the international banking sector persisted.

The fragility of the economic situation at the start of September 2008 and the Bear Stearns precedent made other ad hoc public interventions inevitable. Notable among them was the bailout of Fannie Mae and Freddie Mac, two entities that were simultaneously listed corporations and US government-"sponsored" enterprises, which held or guaranteed some $5,400 billion of mortgages.

These two giants, which thanks to an implicit government guarantee had been able to borrow funds very cheaply in order to buy, package and resell mortgages of good quality, had exploited that guarantee to operate with high leverage and buy bonds based on subprime mortgages or other high-risk loans. As a result, and despite the granting of a more explicit government guarantee, Fannie Mae and Freddie Mac met with growing difficulty in funding themselves on the market and thus in carrying on their traditional activity and repaying their maturing debt. Their failure would have caused the total collapse of the real estate market in the United States and brought down many regional mortgage lenders; abroad, it would have given rise to an uncontrollable reaction on the part the sovereign and institutional creditors in developing countries most exposed to the two corporations. On 8 September the Treasury Department therefore bought non-voting preference stock and warrants of the two corporations for an overall equity share of almost 80%, effectively wiping out the previous shareholders but sparing the creditors by buying back or insuring the bonds issued by the two corporations. In addition, Fannie Mae and Freddie Mac were given access to a short-term credit line on easy terms through the end of 2009. In the following months these State commitments entailed additional outlays (see section II.1).

A few days after the nationalization of Fannie Mae and Freddie Mac, the Fed and the Treasury Department had to face banking crises and, in particular, the difficulties of two of the four largest US investment banks, leading to the failure of Lehman Brothers and the bailout of AIG. The two episodes mark the watershed between the second and the third, most dramatic phase of the financial crisis.

CHAPTER II

FROM THE BRINK OF DISASTER TO INADEQUATE POLICY RESPONSES

From the brink of disaster to inadequate policy responses

II.1 The third phase: from regulatory failures to public programs

Although the case of Fannie Mae and Freddie Mac arose from a distorted combination of State and market elements designed to conceal public debt and provide a rent to private investors, it marked a further regulatory failure. But the unsustainability of ad hoc measures in response to the crisis became obvious with the forced exit of Lehman Brothers from the market and the subsequent bailout of AIG.

From the start of 2008, Lehman Brothers had had to make large writedowns, and in the second week of September its share price fell so steeply as to compromise plans under way for fresh injections of private capital and disposals of business segments. Up to 13 September, there appeared to be a contest between a group of investors headed by Bank of America, the largest US bank in terms of deposits, on the one hand and Barclays, a British bank, on the other, to take over Lehman, while three other struggling intermediaries - Merrill Lynch, Washington Mutual and Wachovia - seemed less attractive. Instead, over the weekend Merrill Lynch was acquired by Bank of America at a 70% premium to its last stock market price, and in the following days Washington Mutual was rescued by JP Morgan and Wachovia was taken over by Wells Fargo after a duel with Citigroup. Lehman found neither private buyers nor government aid and had to file for bankruptcy protection under Chapter 11. Its doom was sealed when Barclays refused to finalize the acquisition unless the US government offered a guarantee on Lehman's mounting debt similar to that granted to JP Morgan in respect of Bear Stearns. According to observers, the rigid stance taken by the authorities reflected their decision to "punish" the major investment bank least interconnected with the retail market, in order to "signal" to the institutions under their supervision that no one was guaranteed against the possibility of failure and thereby temper the moral hazard effects of the previous bailouts.

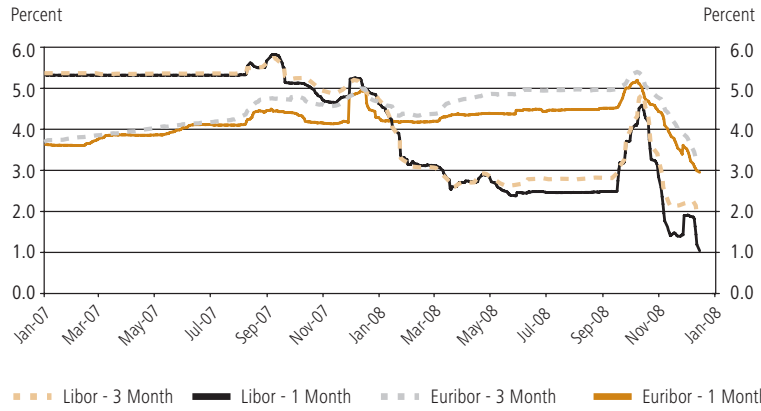
The impact of Lehman's failure overwhelmed global financial markets for more than a month. The two remaining big US investment banks, Goldman Sachs and Morgan Stanley, contended with spiraling difficulties, to the point that they were forced to turn themselves into bank holding companies and submit to the related regulation. The clogged interbank market froze further, with interest rates reaching new peaks. The refinancing that European banks obtained from the European Central Bank stoked deposits with the ECB, which rose to their historic high, rather than interbank lending, despite the yield differentials. Spreads on credit default swaps increased, although the direct impact of the Lehman failure on that segment was limited. Market expectations deteriorated further for real estate, while equities and corporate bonds suffered a rout. In the advanced economies, the signs of recession grew stronger. A stampede by US savers out of US money market funds, found guilty of holding Lehman bonds and commercial paper, made it necessary to introduce a government guarantee. Figures 5-7 give descriptive evidence of some of these developments.

In the week following the Lehman failure, while the Treasury and the Fed were trying to buffer the initial repercussions, the situation of AIG precipitated. In addition to being a leader in traditional insurance business, AIG held a dominant position in the international market for credit default swaps, products created as coverage on loans risks but that had been turned into instruments for speculating on the probability of borrowers' defaulting and devices for concealing the riskiness of banks' assets and thus reducing their capital requirements. Consequently, AIG often acted like an investment bank or hedge fund and was at the center of a web of high-risk relationships with a host of US and European financial institutions.

It is likely that the failure of AIG would have largely wiped out the effects of the capital increases made by the banking sector since the end of 2007 and devastated the European financial market. What is in question, then, is not whether AIG ought to have been bailed out but how that was done. The Fed gave AIG a two-year loan of $85 billion at a rate equal to Libor plus 8.5 percentage points, collateralized by all of the assets of the group, some of which would have to be sold off. At the same time, the Treasury Department acquired an equity stake of nearly 80% in AIG. Furthermore, the US government guaranteed an unlimited credit line to the Fed, so that the Fed's increasing lending against collateral of doubtful value would not compromise its balance sheet. With these arrangements, notwithstanding the Federal Reserve Act, the authorities broke at least

Figure 5

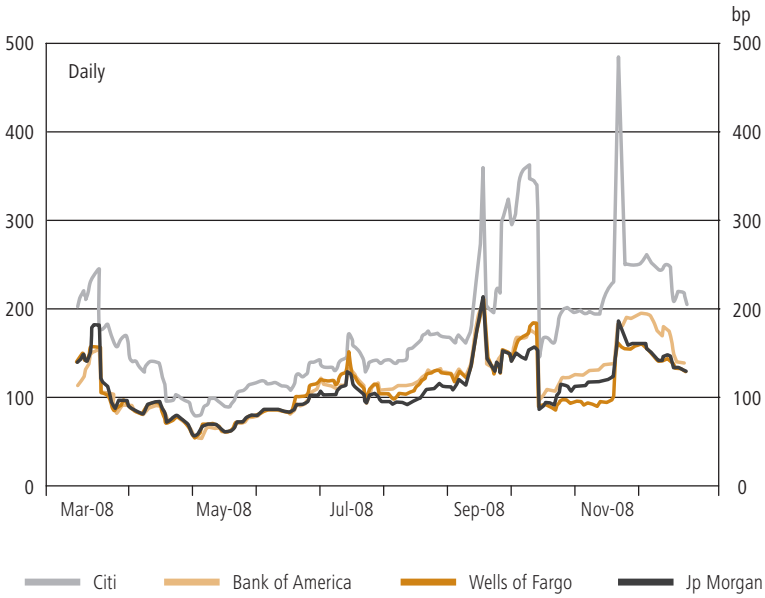
Euribor and Libor Rates



Source: www.euribor.org, www.mortgage-x.com

Figure 6a

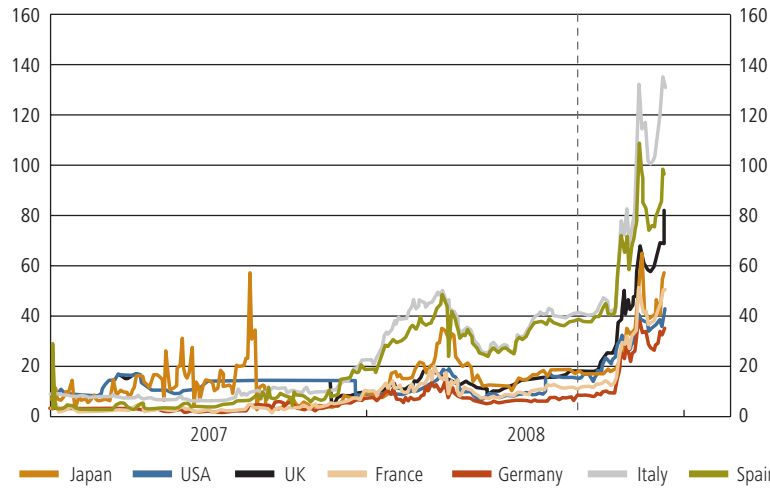
Commercial bank CDS Spreads



Source: Markit, www.financialstability.gov

Figure 6b

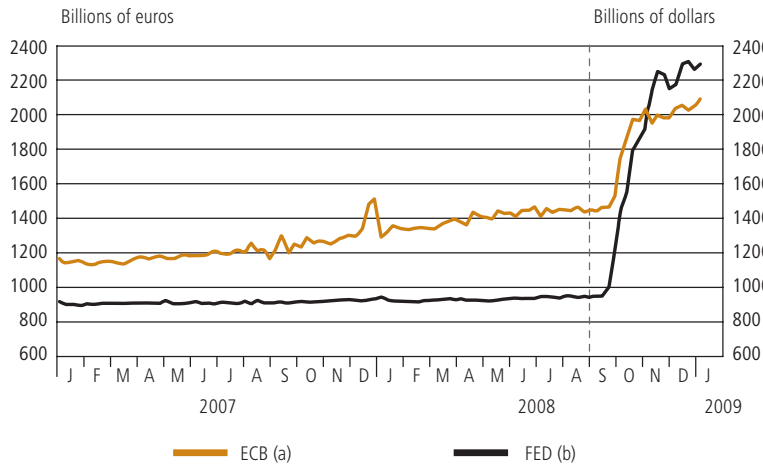
CDS spreads of 5 year Treasury bills



Source: EAAG 2009

Figure 7

Central banks balance sheets



Notes: (a) Total assets / liabilities (b) Total factors supplying reserve funds
Source: EAAG 2009

three rules. The Fed, which had extended its sphere of competence to include investment banks, intervened in respect of an institution (AIG) which it did not regulate. The Fed then financed de facto the acquisition of that institution by the Treasury and accepted its own financial dependence on the government. Finally, the central bank socialized the losses of a non-bank intermediary and by so doing implicitly endorsed the position that the banking sector does not require more stringent rules than other intermediaries.

Coming hard on the heels of the decision to abandon Lehman to its fate, the manner in which the AIG bailout was managed made it evident, in the United States, that it was no longer possible to follow an arbitrary, case-by-case approach. In Europe, instead, the two events focused attention on the fact that many British and some continental banks were operating with even higher leverage than American banks, with high funding costs and balance sheets weighed down by increasingly risky assets. Between the end of September and the first few days of October 2008, the Icelandic banking sector, the leading Irish banks, the most important banking groups of the Benelux countries, countless British intermediaries, several German banks and some French banks skirted failure. It is no surprise, therefore, that both in the United States and in the European Union countries a new phase of the crisis began, the third, characterized by attempts to launch systematic plans of public intervention.

In the shadow cast by the AIG bailout, the US Treasury moved first, presenting a very succinct, preliminary formulation of what would become the Troubled Assets Relief Program (TARP) on 19 September. After an eventful passage through Congress, the TARP was launched (3 October) as part of the Emergency Economic Stabilization Act, with an initial endowment of $700 billion ($250 billion immediately available, $100 billion available to the US president, and $350 billion subject to congressional approval) for the purchase, through "reverse auctions", of the high-risk, illiquid assets that were undermining the US financial sector. However, this first version of the TARP proved unmanageable for several reasons. To begin with, although the program set time limits for the government's asset purchases, it failed to set precise limits on the types of asset and the issuers potentially involved. In addition, reverse auctions were an appropriate mechanism for determining the equilibrium prices for those assets only if these were grouped in homogeneous classes (Ausubel and Crampton 2008), but the vast range of assets

involved made this classification almost impossible, so that there was the risk that the auctions would set prices that were too low for some assets, placing an incongruous burden on the balance sheets of intermediaries already in difficulty, and too high for others, with the government taking on excessive, unsecured risks. Lastly, cleansing the balance sheets of US intermediaries of these assets would have involved outlays beyond the TARP's resources and far exceeding those necessary for an alternative measure, namely recapitalization of intermediaries in difficulty.

Partly in light of the steps taken by the European countries (section II.2), in mid-October the US government decided to use the bulk of the $350 billion of TARP funds available for a new initiative in favor of eligible applicant banks: the Capital Purchase Program (CPP). This involved the purchase by the Treasury of preferred shares without voting rights as regards ordinary operations and the purchase of a warrant, with a maximum amount of $25 billion per intermediary. Intermediaries may redeem these shares starting from the third year or, before that date, may replace them with private capital equal to at least 25% of the common stock. In the meantime, they undertake to pay the Treasury an annual dividend of 5% in the first five years and 9% after that. In addition, the same banks must agree to governance rules: compensation and incentive schemes not tied to excessive risk-taking, repayment of bonuses connected with calamitous operations, restrictions on severance packages for top management. Thanks to exemptions, the regulators allow the banks involved to count the preferred stock in their tier 1 capital ratio, (ratio of tier 1 capital to risk-weighted assets). Robust moral suasion convinced nine of the biggest US banks (Bank of America, Merrill Lynch, JP Morgan, Citigroup, Wells Fargo, Goldman Sachs, Morgan Stanley, Bank of New York, and State Street) to apply immediately and tap the CPP for a total of $125 billion. Between mid-November and mid-December another 106 smaller banks resorted to the program, for a government commitment amounting to $43.7 billion.

Another program was put in place alongside the CPP. The Systemically Significant Failing Institutions Program (SSFIP), not capped at $25 billion per operation, was mandatory for intermediaries on the verge of bankruptcy, unable to procure private liquidity and posing direct and indirect potential contagion effects. In addition, bank deposit insurance was enhanced and resources were allocated for the implementation of a long-term policy of

tax reduction. The SSFIP was used to modify the terms of the government bailout of AIG, which in the previous weeks had been unable to meet its commitments through sales of non-core assets and had obtained another loan from the Fed for $37.8 billion. The Treasury invested $40 billion in AIG in return for new non-voting preferred stock with an annual dividend of 10%. This investment made it possible to reduce the first loan from the Fed to $60 billion from the original $85 billion, extend its maturity to five years and reduce its interest rate to 3 percentage points above Libor. Accompanying it was a fresh loan of $22.5 billion from the Fed to a new company, partially financed and guaranteed by AIG, set up to buy residential mortgage backed-securities held by AIG.

At first these measures seemed to stem the panic; for example, in mid-October 2008 Mitsubishi Ufj, a Japanese intermediary, bought 21% of Morgan Stanley in convertible securities and preferred stock with a 10% dividend. But the subsequent reaction of the financial markets was negative, since the evaporation of the promised public purchase of high-risk assets made these even more illiquid. In the trading week of 17-21 November the share prices of the major US banks tumbled. In particular, after buying its own structured investment vehicles (with an outlay of $17.4 billion), Citigroup's share price lost 60% and its market value fell below the amount of public capital that had been injected into it under the Capital Purchase Program ($20.4 billion, against $25 billion); Bank of America, weighed down by its costly acquisition of Merrill Lynch, saw it share price plunge by 30%. Meanwhile, Fannie Mae and Freddie Mac were still struggling to get out of trouble despite the early-September bailout. Faced with these emergencies, and particularly the risk that a bankruptcy by Citigroup would cause the collapse of the financial markets, at the end of November 2008 the Treasury, the Fed and the Federal Deposit Insurance Corporation (FDIC) launched two more programs.

One, the Targeted Investment Program, was designed to rescue Citigroup. After rejecting an AIG-like "nationalization" of Citi, the Targeted Investment Program provided for the following: a new investment by the Treasury of $20 billion (financed out of TARP funds) for the purchase of preferred stock (with an 8% annual dividend) and warrants; a public guarantee covering 90% of any losses after the first $29 billion tranche, with the TARP covering the next $5 billion tranche, the FDIC the third tranche of $10 billion and the Fed the remainder. Since Citi had more than $300 billion of illiquid assets

on its balance sheet, the potential cost of this guarantee can be estimated at $75 billion. In return for this aid, Citi came under the TARP restrictions on executive pay and agreed to cap its dividend per share at $0.01.

The second program, the Term Asset-Backed Securities Loan Facility (TALF), was introduced by the Fed and the Treasury. Its initial funding of $20 billion, drawn from the previous government programs, gave the Fed leverage of $200 billion with which to finance, in the first few months of 2009, the purchase of ABSs backed by high-risk loans and loans guaranteed by the Small Business Administration ($200 billion). Provisions as also made for the Fed to buy securities guaranteed by Fannie Mae, Freddie Mac or similar institutions ($600 billion). This strengthened public involvement in the rescue of Fannie and Freddie, which had to undertake to proceed with a more drastic reduction of their holdings of asset-backed securities. In this way the US authorities sought to ease the liquidity constraints in the financial markets and to support the real estate sector.

Table 8 summarizes the main measures envisaged by the different US programs.

Table 8

Main supporting actions of US policy makers

14/03/08 Bear Stearns gripped by liquidity crisis. The Federal Reserve and JPMorgan Chase provide secured funding to Bear Stearns, as necessary, for an initial period of 28 days.

24/03/08 The Fed lends $29 bn to facilitate the acquisition of Bear Stearns by JPMorgan Chase.

13/07/08 The Fed is authorised to lend to Fannie Mae and Freddie Mac in case of necessity. Temporary increase in the line of credit made available by the US Treasury to Government Sponsored Enterprises (GSEs); temporary authority for the Treasury to purchase GSEs equity.

07/09/08 Fannie Mae and Freddie Mac are placed into conservatorship. Senior preferred stocks purchase agreement between GSEs and Treasury (up to $100 bn).

16/09/08 Up to $85 bn loan granted by the Fed to AIG; the loan is collateralised by the assets of AIG. The US government receives a 79.9% equity interest.

25/09/08 Washington Mutual is placed into the receivership of the FDIC

08/10/08 Fed to borrow up to $37.8 bn in investment-grade, fixed-income securities from AIG in return for cash collateral.

10/11/08 The US Treasury announces the purchase of $40 bn of newly issued AIG preferred shares under TARP. Fed credit facility consequently reduced from $85 to $60 bn. The Fed creates for AIG a RMBS facility (up to $22.5 bn) and a CDO facility (up to $30 bn).

23/11/08 Government guarantee on a Citigroup asset pool of approximately $306 billion of loans and securities backed by commercial and residential real estate and other similar assets.

Source: Di Noia and Micossi 2009

II.2 The European influence

While the United States was thrashing about, unable to master the situation and repeatedly redesigning its plans, the European Union began to muster a coordinated response to the spreading effects of Lehman's failure, with a focus on three objectives: the protection of savers, State recapitalization of intermediaries and public guarantees on a part of the stock of illiquid, high-risk assets. After the first measures, taken only at national level or in concert by neighboring countries faced with emergencies at major institutions such as Dexia, Fortis and ING, the meetings of the Ecofin Council (7 October 2008) and Eurogroup (12 October) laid down common principles of intervention. It was decided that no intermediary whose failure might have systemic effects in the European market would be allowed to fail. To this end, the individual EU States were permitted to buy financial assets and to guarantee non-subordinated bank liabilities issued up to the end of 2009 with a maturity not exceeding five years. In particular, the public guarantee on bank deposits was raised to €50,000 or, as latter happened in most of the EU countries, to €100,000. Further, to support the flow of credit to the real economy, governments would be able to buy preference shares or hybrid instruments issued by solvent banks. In order to limit the distortionary impact of this State aid, the individual EU member countries had to give all banks operating in their domestic market access to it and set uniform terms and conditions approved by the European Commission. Lastly, in part to avoid an asymmetric strengthening of the recapitalized intermediaries and the associated anti-competitive effects of State aid, European policymakers called for close coordination among national supervisory and regulatory authorities, especially in the case of cross-border intermediaries.

Disappointing the hopes of France and some other countries, these common principles were not followed by the launching of a European plan and did not forestall national differences (Barucci and Magno 2009). Given the modest size of the European Union's budget, the idea of bond issues in euros to finance common interventions (albeit with any losses charged to the member States' budgets ex post) seemed a little far-fetched. In the event, at the G7 meeting in mid-October the two European objectives of protection for savers and recapitalization of intermediaries also became the guidelines for public action in the United States and Asia.

The United Kingdom led the way in Europe in taking systematic measures, man-

aged by the Bank of England and the Financial Supervisory Authority. The UK began by bolstering the asset swaps scheme that had been introduced in April 2008 with £200 billion, allowing sufficiently well-capitalized banks to swap illiquid assets on their balance sheets for government securities for up to three years. In early October the UK rolled out three new programs. The Banking Bill authorized public purchases of assets of distressed banks and non-bank intermediaries, with the proviso that the assets were to be sold on the market within one year, after the requisite restructuring. The Credit Guarantee Scheme (CGS) permitted the government to provide up to £250 billion of guarantees on a pool of debt instruments issued by the seven largest banks and the largest building society as well as by other applicant financial institutions with adequate capitalization or concrete prospects of (public or private) recapitalization; the cost of the guarantees was 0.5% plus the average annual spread on the five-year credit default swaps of each of the intermediaries involved. Finally, the Recapitalization Program authorized a Treasury-owned entity to acquire preference shares (with a 12% annual dividend) or other forms of new equity of the same CGS-eligible intermediaries, up to a maximum of £50 billion, in the absence of private alternatives.

The aim of the Recapitalization Program is to strengthen the banking sector's tier 1 capital and support lending to the real economy. Participation, which is voluntary, entails a series of restrictions on governance (especially on executive pay) and excludes the payment of dividends on privately-owned shares. The beneficiaries may redeem the publicly-owned shares after five years. Originally, the government and the Bank of England had intended to allocate £25 billion for the recapitalization of the seven major banks and the largest building society, but they were forced to use no less than £37 billion to bail out RBS (£20 billion, three quarters of which in ordinary shares and one quarter in preference shares) and the new group created by the merger between Lloyds TSB and HBOS (£17 billion). Those two operations gave the State an equity stake of about 60% in RBS and 43% in the nascent Lloyds-HBOS group. The attendant collapse of the share price of the two banks convinced the three other leading banks not to take part in the program. Abbey preferred to turn to its controlling shareholder, the Spanish group Santander, for financial support and HSBC decided against a capital-raising operation. Barclays reserved its £5.8 billion capital increase to a part of its shareholders and to other investors with ties to it (a sovereign fund and private investors based in Qatar and Abu Dhabi), provoking the ire of the excluded institutional shareholders. Barclays nevertheless did use the Credit Guarantee Scheme.

In mid-October 2008 Germany too instituted a fund for State intervention in the financial sector (Soffin). It committed up to €400 billion to guarantee interbank loans and other bank liabilities with a maturity not exceeding three years issued up to the end of 2009, but, based on an expected default rate of 5%, the amount actually entered in the government budget was €20 billion. Germany also earmarked €5 billion for purchases of illiquid assets held by intermediaries, and allocated €80 billion for public purchases of newly issued ordinary or preference shares or hybrid capital instruments (counted in tier 1 capital). Intermediaries that accept public recapitalization are subject to constraints: dividends may be paid only to the State, executive pay cannot exceed €500,000 a year before tax, and strategic choices must include projects in favor of small and medium-sized enterprises. Despite these restrictions, many banks applied to take part in the recapitalization program: Bayern LB (€5.4 billion) was followed in early November by Commerzbank (€8.2 billion for the purchase of non-voting shares and €15 billion of guarantees) and by West LB and HSH Nordbank. But the largest undertaking for the government, flanked by a group of banks, was the rescue of Hypo Real Estate, which received some €50 billion of loans and €60 billion of guarantees.

France was the other major country of continental Europe that introduced an array of measures in line with the European Union's guidelines at about the same time. The French government provided a €40 billion guarantee on the securities issued by a State entity (Société de Prise de Participation de l'Etat: SPPE) for the recapitalization of distressed banks (e.g. Dexia). In addition, with a hypothetical commitment of €320 billion, the authorities provided a guarantee on financial intermediaries' new bond issues. Lastly, they allocated €10.5 billion for a State guarantee on securities issued by the SPPE in order to be able to purchase perpetual hybrid bonds, with preference in the event of bankruptcy, that the country's six biggest banks were invited to issue. These subordinated bonds, which are included in tier 1 capital, can be redeemed from the fifth year onward. They bear interest at fixed rates (based on various parameters and averaging 4 percentage points above the yield on government securities) in the first five years and at variable rates thereafter. They also entail adoption of a code of ethics.

Table 9 summarizes some of the public interventions envisaged by the plans of the three largest EU countries (and Switzerland and Benelux). With measures like those we have described, the countries of the European Union created a safety net for their intermediaries teetering on the edge of bankruptcy

and induced their large banks whose situation was not critical to strengthen their capital base and, in particular, their tier 1 capital ratio. As mentioned, this strategy influenced the action plans of the other industrial countries. And although fundamental differences persisted, closer linkage developed between the European countries, the United States and the main Asia countries both in the field of liquidity and monetary policy management and in that of regulatory measures.

Table 9

Main supporting actions of EU policy makers

29/09/08 Fortis €11.2 bn capital injection into Fortis bank institutions by Belgium (€4.7 bn), the Netherlands (€4 bn) and Luxembourg (€2.5 bn) On 03/10/08, the Netherlands take over the Dutch Fortis division assets, including Fortis' interests in ABN Amro (€16.8 bn).

06/10/08 The German authorities and the finance sector agree to provide financial support to Hypo Real Estate (€50 bn liquidity facility; €35 bn guaranteed by the German government).

13/10/08 £37 bn Tier 1 capital investment by the UK government in RBS, HBOS and Lloyds TSB.

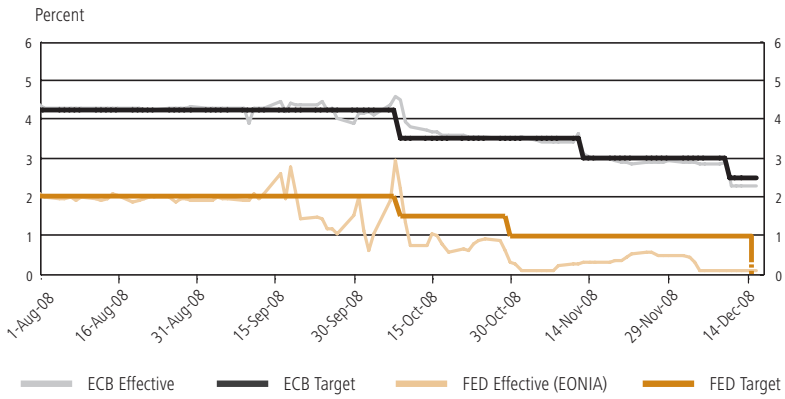
16/10/08 Transfer of up to $60 bn of illiquid assets of UBS to an SPV owned by the Swiss central bank and funded by UBS (up to $6 bn) and the central bank (up to $54 bn).

Source: Di Noia and Micossi 2009

The spiraling of the financial crisis after the Lehman bankruptcy, evidenced above all by spikes in overnight interbank lending rates, prompted the monetary authorities to expand their supply of refinancing to intermediaries and to loosen their interest rate policies. The main central banks acted in coordination to inject huge volumes of liquidity into the international markets. The Fed intensified and extended its swaps of government securities for high-risk assets held by banks. The ECB changed some rules so that each refinancing operation was made at fixed rates and for an unlimited volume. On 8 October 2008, for the first time in their history, all of the central banks of economically advanced countries decided simultaneously to lower their reference rates by half a percentage point. In Mid-October, despite persistent liquidity shortages, these measures produced a first easing of the strains in the interbank markets, with a significant drop in three-month Libor and Euribor (see above, Figure 5). The reduction in policy rates continued in the following weeks. The Fed lowered the federal funds target rate to 1% at the end of October and to a range of between 0% and 0.25% in mid-December. The ECB cut its reference rate twice between early October and early November, to 3.25%, and in early December lowered it to 2.5% (Figure 8).

Figure 8

Target and effective rates in the EU and US areas



Sources: ECB, Euribor, Federal Reserve Bank of St. Louis

Meanwhile, the rush of events led economic policymakers and the institutions responsible for accounting standards in the United States and the European Union to eliminate some key rules for the mark-to-market or fair-value accounting of balance sheet assets, to keep banks still latent losses from aggravating deleveraging and further depressing the prices of high-risk, illiquid financial assets. In fact, the procyclicality of fair-value accounting would have increased the probability of a "debt deflation", a vicious circle between the sale of highly illiquid assets at cut-rate prices, banks losses with their impact on lending, a decline in the general price level, and a high propensity to hold liquidity (Fisher 1933; Adrian and Shin 2008). The post-Lehman acceleration in deleveraging also persuaded financial market regulators to temporarily ban short-selling, in order to prevent it from reinforcing downward speculative pressure in falling stock markets and, because of mark-to-market accounting, from concentrating on the more liquid securities

Both of these decisions, though comprehensible, risk introducing additional factors of distortion in information flows and in the transparency of markets under extreme stress. By giving legitimacy to unilateral changes to the rules, they also created incentives for opportunistic behavior and further undermined investors' confidence. Lastly, the decision on accounting standards appears to have disregarded the fact that marking to market is a method of measurement and not the

cause of the phenomenon measured. The discussions surrounding it were silent on fact that the rule was being called into question when it accentuated market downswings, not when it transformed upswings into bubbles. And the action to suspend short-selling appears to have ignored the fact that short-selling, by eliminating possible asymmetries between upward and downward speculation, makes financial markets more complete and limits the risk of systematic rises in securities prices.

II.3 The fourth phase of the crisis

The attempts by governments to implement systematic programs, which characterized the third phase of the financial crisis in the United States and Europe, did not produce a definitive solution. While they did help to lessen the liquidity stains in some market segments and to limit the credit crunch, they did not solve problems afflicting the balance sheets of banks and non-bank intermediaries. This is borne out by the IMF's Global Financial Stability Report of April 2009. The IMF estimated that the writedowns by intermediaries due to the crisis would come to $4,200 billion (of which $2,700 billion in the United States), with the banking sector alone accounting for two thirds of the total. This implies that, to return to the levels of leverage of the mid-1990s, US banks still have to carry out net capital increases of $500 billion and euro-area and British banks increases of $725 billion and $250 billion respectively. Moreover, in both the United States and Europe, the public recapitalization measures actually lowered the quality of bank capital in that they largely involved recourse to hybrid instruments, often more similar to debt that to equity instruments, counted in tier 1 only with some bending of the rules. In any event, at the start of 2009 the health of many large groups in the United States (for instance AIG and Citigroup), the United Kingdom (RBS, Lloyds) and Germany (Hypo Real Estate, Commerzbank) still seemed extremely precarious, and some of the consolidations launched in the United States and Europe to rescue sinking banks were causing severe problems for the acquiring groups (the case of the Bank of America) or encountering obstacles to their execution (the BNP-Fortis case, later resolved at the end of April).

The result was that in both the United States and Europe the truly problematic cases required new ad hoc interventions, and this weakened international coordination. On top of this, the beginning of 2009 saw a deepening of the recession in the main industrial countries, mounting difficulties in developing coun-

tries and increasing financial and "real" economic fragility in much of eastern Europe. In the first three months of 2009 the priority was therefore to prevent the crisis of the "real' economy" from growing so severe as to contaminate the traditional components of bank assets and create a vicious circle with the financial crisis. The start of the year thus marked the opening of the fourth phase of the crisis, characterized by the continuation of expansionary monetary policies but also by the unrolling of massive fiscal stimulus based, in accordance with the recommendations of the IMF, on (temporary) increases in public spending and tax cuts for low- and middle-income households. Although similar in their thrust, these policy initiatives often took divergent forms in the United States and the euro-area countries.

On the monetary policy front, the Fed no longer had room to cut official rates, which were already close to zero, and after the rate cuts of early February and early March 2009 the Bank of England found itself in a similar situation. The two central banks therefore expanded the supply of liquidity to the economic system by absorbing a larger quantity of illiquid, high-risk securities held by the private sector and making systematic purchases of public debt securities. For example, in mid-March the Fed announced that it would buy $300 billion worth of long-term public securities and $750 billion of securities deriving from the securitization of mortgages guaranteed by Fannie Mae and Freddie Mac. Bernanke (2009) maintains that, unlike the strategy of quantitative easing that the Bank of Japan had pursued between 2001 and 2006 in order to increase the reserves set aside by banks, the Fed's policy is aimed at modifying the composition and size of balance sheet assets through credit easing. The fact remains that these programs too have caused the explosive growth of the US banking sector's excess reserves, to equal 1,110% of the compulsory reserves, compared with a high of 50% following the terrorist attacks of 11 September 2001 (Edlin and Jaffee 2009). If this enormous increase in monetary base were to be transformed at least partially into circulating currency instead of being hoarded, there would be a strong stimulus to aggregate demand, with beneficial effects for the solution of the current crisis but also with inflation risks at the end of the crisis.

By contrast, the European Central Bank, after cutting its policy rates by a total of 125 basis points in the first hundred days of the 2009 and bringing its deposit rates close to zero (0.25%), still had room for further rate cuts. Nor did the ECB rule out the possibility of moving toward quantitative easing (like the Fed

and the Bank of England), despite the constraints deriving from the Treaty on European Union and the absence of a pan-European fiscal policy authority. ECB would purchase private-sector issuers' securities. For that matter, the ECB's balance sheet is already lining up with the Fed's in relation to GDP, and 6- and 12-month interest rates in the euro area are not higher than in the United States. The prospect of more marked convergence of monetary policies at international level was confirmed recently (early April 2009), when the Fed and the other main central banks authorized liquidity swap lines in their own currencies for very substantial amounts.

On the fiscal policy front, at its summit meeting in Brussels in mid-December 2008 the European Union adopted the European Commission's recommendations for a two-year economic recovery plan to be implemented through national stimulus measures (amounting to 1.5% of the Union's GDP). This approach combined a flexible interpretation of the European Stability Pact with some slight coordination of the decisions taken independently by member States, leaving room for free-riding (where a country exploits the positive externalities deriving from the expansionary policies of the others without overburdening its own budget). In the United States, after the hesitancy of the Bush administration, the Obama administration, upon taking office in January, introduced and coordinated large-scale spending programs for the construction of tangible and intangible infrastructure, for expanded unemployment benefits and for tax relief for low- and middle-income households. The level of US discretionary expenditure for economic stimulus is the highest in the world, far above the average in Europe. However, European welfare states have extensive automatic stabilizers to cope with cyclical downswings, so that the budgetary policies of the United States and the European countries are less divergent than they might appear to be at first sight (Table 10).

The main challenge for budgetary policies going forward lies in shaping medium-term strategies of adjustment, not in bolstering and coordinating the current expansionary programs. New measures and coordination across and within economic areas remain essential instead for support to financial intermediaries. In fact, the first three months of 2009 saw a flurry of ad hoc measures taken at national level. The countries that faced emergencies were the United States, the United Kingdom, Germany and Benelux. In particular, the United States was forced to acknowledge that, despite the recapitalization of nearly 500 banks by the end of February 2009 under the TARP, the set of programs put in place in 2008 had not produced success in at least three crucial cases: Citigroup, Bank of America and AIG.

Table 10

Stimulus packages and changes in overall balances

	Stimulus Package in Large Countries (in percent of GDP)				Change in Overall Balance (in percent GDP, rel. to pre-crisis year)				Fiscal Balance and Public Dept Projections for 2009 (in percent of GDP)			
	2008	2009	2010	Total	2008	2009	2010	Avg	Overall fiscal balance		Public debt	
									Pre-Crisis	Current	Pre-Crisis	Current
Canada	0	1,5	1,3	2,7	-0,9	-2,9	-3,2	-2,4	0,8	-1,5	61	63
France	0	0,7	0,7	1,3	-0,6	-2,8	-3,6	-2,3	-2,5	-5,5	63	72,3
Germany	0	1,5	2	3,4	...	-3,2	-4,4	-3,8	-0,5	-3,3	61,1	76,1
Italy	0	0,2	0,1	0,3	-1,1	-2,4	-2,8	-2,1	-2,3	-3,9	104,1	109,4
U.K.	0,2	1,4	-0,1	1,5	-1,5	-4,6	-5,4	-3,8	-2,1	-7,2	42,9	58,2
U.S.	1,1	2	1,8	4,8	-3,5	-5,7	-6,1	-5,1	-3,2	-8,5	63,4	81,2

Notes: 1) Pre-crisis year is 2007, except for Germany (2008); 2) The estimate of deficit for the US in 2009 excludes 3.5 percent of GDP in financial sector support included in the January 2009 WEO projections. January 2009 WEO projection is also augmented.
Source: IMF

In the closing months of 2008 Citigroup had obtained capital infusions of $50 billion and government guarantees on more than $300 billion of high-risk, illiquid securities under the Capital Purchase Program and Targeted Investment Program; it had also sold its units in Japan, India and several countries of continental Europe. It was believed that these operations would permit Citigroup to absorb the enormous losses incurred in the second half of 2007 and 2008. Instead, in mid-January 2009 Citigroup had to carry out a drastic restructuring. It began by selling 51% of its Smith Barney brokerage and asset management unit to Morgan Stanley for about $2.5 billion, plus options for the purchase of additional shares over five years. Next, it separated its own "sound" assets (worth $550 billion) or liquidable assets (another $550 billion), grouping them under the old name of Citicorp, from its illiquid, high-risk impaired assets ($850 billion), which were put into a "bad bank" called Citi Holding. Finally, it had to resort again to public support, which translated into an undertaking to convert $25 billion of government-held preferred stock into common stock (with a premium). At the completion of the operation, the US Treasury will own 36% of Citi's capital, reducing the weight of the old private shareholders and of new private investors in preferred stock.

In January 2009, to complete its takeover of Merrill Lynch, Bank of America received a new injection of $20 billion and ten- or fifteen-year public guarantees on assets amounting to $118 billion. These guarantees did not cover the first $10 billion tranche, for which Bank of America remained fully liable for potential losses. The FDIC and the Treasury covered 90% of the potential losses on the next $10 billion tranche, and an additional public guarantee covered 90% of any losses after that. The cost of these public guarantees was: the transfer of $4 billion of preferred shares, warrants on 10% of these shares, and an annual charge equal to the swaps rate plus 3 percentage points for the portion used and 20 basis points for the portion not used. Against these costs, Bank of America got a reduction of its capital requirement, since the government guarantees decreased the risk weighting of the assets they covered.

Lastly, AIG's proceeds on the sale of business units fell short of expectations (although a large disposal - the group's US auto insurance business - did finally take place, in mid-April 2009). In the first half of March 2009 AIG therefore got a third public recapitalization ($30 billion from the TARP) and a further reduction in the interest payments on the more than $150 billion of debt it had contracted, at different times, with public institutions; in exchange, AIG gave the government ownership stakes in two of its international divisions and began securitizing $10 billion of liabilities backed by the assets of its life insurance business. These elements alone did not provoke particular criticism. But a wave of public outrage and sharp attacks on the company by policymakers and regulators ensued when AIG published data showing that more than half of the $180 billion of public aid that the company had received had been transferred to some 80 US and European banking groups in order to meet obligations under credit default swaps written by AIG ($22.4 billion), to pay counterparties to securities lending transactions ($43.7 billion), to liquidate high-risk assets protected by derivatives ($27 billion), and so forth. In addition, under existing contracts the management had been paid bonuses of $218 billion, only part of which was returned.

The British government had to face two critical situations at the beginning of 2009. RBS and Lloyds-HBOS reported huge losses for 2008, despite the generous public contributions they had received in October 2008, and were faltering. Hence the Bank of England had to allocate £50 billion to finance the Asset Protection Scheme providing guarantees for illiquid, high-risk securities on bank balance sheets, while the government made additional support available to intermediaries unable to finance themselves on the market. Essentially, the two programs served

to introduce new ad hoc measures in favor of RBS and Lloyds-HBOS.

With regard to RBS, the British Treasury increased its ownership stake first to 70% in mid-January 2009), and then to 95% at the end of February by purchasing £13 billion of preference shares but limited its voting rights to 75%. In February it also provided a guarantee on 90% of the potential losses on the second tranche of £305.5 billion of illiquid, high risk assets and doubtful loans carried by RBS, with the bank to cover all of the losses on the first tranche of £19.5 billion and 10% of any losses after that. The cost to RBS was £6.5 billion (2% of the face value of the assets insured). Lastly, the Treasury carved out RBS's non-core assets (20% of the total), with a view to liquidating them or selling them en bloc, and committed the bank to expand its lending in the two years 2009-10.

As to Lloyds-HBOS, in early March 2009 the Treasury converted £4 billion of preference shares that it already owned into ordinary shares, thereby increasing its stake to 65% (with voting rights), and subscribed for special convertible securities (without voting rights) for an amount equal to an additional 12% of the group's capital. Further, the Treasury provided a guarantee against 90% of the potential losses on the second tranche of £235 of illiquid, high-risk assets carried by Lloyds-HBOS, with the group to cover all of the potential losses on the first tranche of £25 billion and 10% of any losses beyond that; Lloyds-HBOS paid £15 billion for this protection. Lastly, Lloyds-HBOS, like RBS, committed to expand its lending in the two years 2009-10.

At the beginning of 2009 Germany too had to reckon with the inadequacy of the State aid made available to Hypo Real Estate and Commerzbank towards the end of 2008. Commerzbank's deteriorating accounts and Dresdner's severe problems forced the State to take a significant stake (25%, a blocking minority) in the group resulting from the merger between the two banks and to inject enough capital into its balance sheet reserves to give it a tier 1 capital ratio of close to 10%. This involved a public outlay of about €10 billion, financed mainly by the Soffin rescue fund and, to a lesser extent, by the Finance Ministry. More recently, the government also used Soffin as a vehicle to launch a takeover bid for Hypo Real Estate, which is still in a state of crisis in spite of repeated measures in its support (public acquisition of 8.7% of the capital for €60 million).

CHAPTER III

CAPITAL RAISING AND BALANCE-SHEET CLEANING

Capital raising and balance-sheet cleaning

III.1 Return to the past and possible solutions

The reversion to ad hoc State interventions in the financial markets and the rapid deepening of the recession in the first quarter of 2009 polarized the situation both across and within countries. In the United States, the critical situation of three large financial institutions (Citi, Bank of America and AIG) was accompanied by a surge of bank failures (27 cases in the first four months, compared with 25 in all of 2008 and 3 in the last quarter of 2007) and difficulties for many operators. On the other hand, six small/medium-sized banks returned the public subsidies they had received, and in April three large banking groups (Wells Fargo, Goldman Sachs and JP Morgan) reported good first-quarter results and declared they were ready to return the TARP funds they received in October 2008 (section IV.1). Similarly, in the United Kingdom the crisis of RBS and Lloyd-HBOS did not push the other major banking groups — HSBC and Barclays in particular — into participating in the new government support schemes. Despite making extensive repairs to their balance sheets and reporting losses in specific branches or areas of business, Barclays and HSBC reported sizable profits for 2008. In addition, Barclays intended to increase its liquidity by selling its asset management unit and HSBC successfully completed the largest and unforeseen capital increase ever carried out by a banking group (£12.5 billion), reserved to existing shareholders (with a 97% take-up rate) and only residually to the market (3%).

Some polarization has also occurred in the euro-area's banking sector. Spain, whose banks, with Italy's, had been the solidest in continental Europe in 2008, has recently been afflicted by the crisis of local savings banks with an overexposure to the building industry and real estate sector, but the two largest Spanish groups, despite several misadventures,

continue to exhibit sound accounts. France updated its plan of public measures at the end of January, making new funds available to troubled or undercapitalized banking groups. But this opportunity was seized by the European group that probably has strengthened its relative position more than any other during the crisis, namely BNP. Having committed itself to a contested acquisition of part of the banking and insurance assets of the Fortis group, under the control of the Belgian State, BNP issued more than €5 billion of non-voting preference shares, taken up by the French State, which thus increased its equity stake in BNP to 18.5%. Upon approval of the deal by the Belgian shareholders of Fortis, BNP will also count the Belgian State among its shareholders, and the portion of the new BNP in public hands will rise to nearly 30%. Meanwhile, in early 2009 the Dutch government, which in October 2008 had nationalized the local branch of Fortis and given ING a capital injection of about €10 billion, set expansionary objectives for Fortis and provided a guarantee on 80% of ING's portfolio of securities most directly linked to US mortgages and mortgage-based derivatives. Among other things, this enabled ING to continue to pursue an aggressive strategy for raising deposits in the European market.

The developments described above explain why the situation in the United States worsened further by comparison with that in the euro area in the fourth phase of the financial crisis. In countries like France and the Netherlands, perhaps an opportunistic use was made of State aid, and in countries like Germany there was mounting concern about some intermediaries, in part owing to the growing difficulties of many East European countries. But in the United States, the bankruptcy of much of the banking and financial sector was feared in the second half of February and first half of March 2009. This caused various commentators to denounce the futility of costly injections of public capital into individual intermediaries and to call for a systematic nationalization of all distressed institutions. The risk of rout for the US financial system convinced the Obama administration that ad hoc measures had to give way to more general solutions. The same risk also concentrated discussion on the different public strategies and lent new urgency to reform of domestic and international regulation.

It is too early to say whether the measures that the US Treasury Secretary introduced in the second half of March 2009 and the decisions taken by

the G20 in London in early April have opened the fifth and final phase, marked by an ebbing of the financial crisis and the need to prevent it from spiraling with the crisis of the real economy into a prolonged worldwide depression. In what follows we limit ourselves to assessing the new developments that for the time being have made the threat of financial sector collapse in the United States more remote. The rest of this chapter will look at the debate that paved the way for these developments. Section III.2 will examine the strengths and weaknesses of the so-called Geithner Plan and summarily compare it with the different solutions adopted in the United Kingdom and Germany. After concluding this chapter with an analysis of the peculiar situation of banking sector in Italy (section III.3.), in Chapter IV we will draw a balance of the US changes to accounting standards for banks and of the proposals for regulatory reform, rendered more concrete by the outcome of the G20 meeting.

The numerous programs deployed by the Bush administration in the last quarter of 2008 and pursued in the first months of 2009 drew immediate criticism (see Table 11 for a summary). Commentators agreed in pointing out the lack of effective combination between public capital injections, guarantees and purchases of impaired securities. Some also criticized the inadequacy of tax incentives in respect of non-performing mortgages and, perhaps underestimating the complexity of the chain of derivatives, asserted that more incentives would have eliminated the root cause of the crisis and moved market prices closer to their equilibrium values. Others recommended bolstering confidence among savers and supporting share prices through "announcements" of future recapitalizations by the government at pre-determined prices appreciably higher than the prevailing ones. Still others proposed persuading holders of illiquid, high-risk debt securities to swap their claims for new equity in the troubled companies (Zingales 2008). The last-mentioned proposal is likely to be acted upon as the Geithner Plan unfolds (see section IV.1). However, in the first few months of 2009 the debate focused on three possible, diversely combinable measures (Elliott 2009a): the creation of one or more "bad banks", systematic nationalizations of banks and widespread guarantees on riskier bank assets.

The extreme form of the bad-bank hypothesis envisages the State buying the high-risk, illiquid assets from the banking sector and concentrating them in a single,

Table 11

TARP/Financial stability plan Tracking Report

Status at 31-3-2009

$'s in billions	Maximum announced program funding level	Projected Use of Funds	Apportioned (1)	Asset Purchase Price (2)	Cash-Basis Disbursed/ Outlays (3)
Consumer & Business Lending Initiative					
1) TALF (as initially announced)	100	20	20	20	0,1
2) SBA Securities Purchase	15	15	0	0	0
3) TALF Asset Expansion		35	0	0	0
Subtotal -- Customer Business Lending Initiative	115	70	20	20	0,1
Homeowner Affordability and Stability Plan	50	50	32,5	0	0
Capital Purchased Prog. (CPP)	250	218	230	198,8	198,8
Capital Assistance Prog. (CAP)	TBD	TBD	TBD	TBD	TBD
Public – Private Investment Fund (PPIF)	100	100	0	100	100
Targeted Investment Prog.(TIP)	40	40	40	40	40
Automotive Industry Financing Prog. (AIFP)	24,9	24,9	24,9	24,8	24,5
Guarantee Program (Citigrup loss share agreement)	5	5	5	5	0 (4)
Guarantee Program (Back of America loss share agreement)	7,5	7,5	0	0	0
Subtotal -- Asset Guarantee Program	12,5	12,5	5	5	0
Sistemically Significant Failing Institutions	70	70	70	40	40
Auto Supplier Support Program	5	5	0	0	0
Warranty Commitment Program	TBD	TBD	TBD	TBD	TBD
TOTAL	**667,4**	**590,4**	**422,4**	**329,6**	**303,4**
Remainder of $700 billion available:	32.6 $	109.6 $	277.6 $	370.4 $	396,6
Percentage of $700 billion available:	5%	16%	40%	53%	57%
Actual Redemptions:	0,4				
Total Receipts:	**3.5(5)**				

1) This is the amount that had been apportioned as of March 31, 2009. This is the sum of the Program Account, Budget Authority and the Financing Account loan level.
2) Face value of the instrument purchased.
3) Represents TARP cash that has left the Treasury.
4) Reflects negative subsidy of $-750 billion off of the total $301 billion Citigroup guarantee, not just the $5 billion portion guaranteed by Treasury via the TARP.
5) Reflects total receipts received under all programs. Dividends received under the CPP as of March 31, 2009 were $2.52 billion.
Source: www.financialstability.gov

centralized bad bank under its control. The objective, like that unsuccessfully pursued in the first version of the TARP, is to relieve banks' balance sheets of the burden of distressed assets so that banks can resume normal operations and, if necessary, raise fresh capital in the market. But the success of such a procedure depends on solving a problem that the TARP failed to solve: determining "appropriate" prices for the different securities. Setting prices too high would weigh on the current government deficit and spell future losses for the public bad bank, thus socializing private sector losses; setting them too low would exacerbate the undercapitalization of an excessive number of banks and also generate adverse selection effects or induce many banks not to sell the troubled assets and their managers to take even riskier actions (moral hazard effects). What is more, whatsoever attempt to determine prices by a more differentiated, rigorous procedure, for example through reverse auctions, would have to contend with the heterogeneity of the different types of securities to be purchased. On the other hand, even assuming, for the sake of argument, that purchase prices were established, there would still be the problem of running a single bad bank that supplants the market in managing the impaired assets. Why should one expect a State or a public institution, lacking effective incentives and the specific information held by each bank regarding its own problem securities, to be able to choose the most efficient way and best timing to liquidate the entire portfolio of these securities?

Nor would the weaknesses of the single bad bank be remedied by replacing public ownership with mutual ownership: all of the above-mentioned difficulties would persist and the mechanisms of adverse selection would probably be aggravated by the refusal of the banks with less "dirty" balance sheets to take part in the scheme. By contrast, the crucial problem of determining an "appropriate" vector of purchase prices for impaired securities would be attenuated if the creation of a public bad bank were accompanied by the nationalization of all the banks involved. In this case the State would have access to each bank's specific, "private" information about its balance sheet assets and could exploit its position as single owner to decide which banks to clean up and which to let fail; this would minimize the adverse selection and moral hazard effects. In principle, the nationalization of the banking sector would also make it possible to tackle two otherwise unsolved matters: punishment of the shareholders and managements of the mismanaged banks, and protection of the other stakeholders in those banks and of the interests of the community.

However, the systematic nationalization of the banking sector has implications so large and so negative as to make it impracticable. Since it would be a response

to the failure of the financial markets, the banker-State would not be obliged to play by the rules of the market economy or to limit its operations to emergency situations. The valuation of the financial assets on banks' balance sheets and the allocation of financial services to firms and households would be based on time-worn bureaucratic-administrative methods or, worse, the logic of patronage and the spoils system; and the financial sector would be transformed into a producer of "public goods" in the most traditional, unfavorable sense of the term.

This conclusion is disputed by authoritative commentators who, often referring to the success of the Swedish experience, have advocated systematic bank nationalizations and argued that these can be temporary. It is true that in the early 1990s Sweden did face and overcome a general banking crisis and rapidly recouped the direct (public and private) costs. But, as one of the protagonists of that experience recently recalled (Lundgren 2009), State ownership was actually less important than three other factors: the setting up of bad banks inside the individual banking groups that were flirting with bankruptcy due to distressed assets, the supply of State guarantees on all non-equity bank securities, and temporary public recapitalization of banks that were unable to raise equity on the market. One of the seven largest Swedish banks was already under State control before the crisis, and only a second one was nationalized during the crisis.

If we put aside the idea of systematic nationalization, both bad banks internal to each intermediary and State guarantees have three advantages over the centralized bad bank: they do not require a precise, irreversible pricing of troubled assets; they do not take management away from those with informational advantages and the strongest incentives to exploit them (i.e. each bank); and they do not require an arrangement for managing the high-risk, illiquid assets that is so centralized and concentrated as to be inefficient. On the other hand, the recourse to decentralized bad banks and State guarantees implies some risks: it strengthens the discretionary power of each bank, the arbitrariness of government intervention and the political involvement of regulators. These risks do not have to be underestimated. However, the first one can be kept under control by the medium-term validation of market mechanisms, whereas the other two can be lowered by the ex ante introduction of few rules (see chapter 4). Thus the advantages overcome the risks; and it becomes important to compare the different impact of decentralized bad banks and State guarantees.

Compared with State guarantees, an internal bad bank has the advantage of

cleaning up the originating bank's balance sheet and calibrating the punishment of the bank's shareholders and management. For example, it can be allowed to fail; or it can be capitalized with (partial or total) asset transfers from the originating bank, which, with its books cleansed, is now in a position to raise liquidity on the market or from the State on more favorable terms; or it can be recapitalized with public resources. As a rule, a decentralized bad bank involves at least partial public recapitalization. This brings out two advantages of public guarantees over bad banks. Although those guarantees transfer the risk of bank failures to the public sphere, they do not involve immediate commensurate costs to the public budget since they only necessitate setting up a partial precautionary reserve; moreover, as in the case of British banks, they can even produce sizable receipts from fees. Two crucial weak points remain, however: State guarantees do not disburden banks' balance sheets of the troubled assets once and for all, hence they lower banks' capital requirements to a limited extent.

Following a similar line of reasoning, in the first few months of 2009 a number of US commentators suggested that public recapitalization should be combined with guarantees, that is to say the same model that the European Union countries had adopted in October 2008 (discussed in section II.2). As we have seen, during the third phase of the crisis that model produced better results than the contradictory measures taken in the United States, but it was unable to solve the direst cases, for it failed to keep the generous recapitalizations from being largely offset by the progressive depreciation of banks' balance sheet assets. Therefore, the conclusion, suggested some time ago by Spaventa (2008), is that any public recapitalization, to be effective, must clean up banks' assets by setting a floor for the prices of the impaired securities they hold.

III.2 The new public intervention plans

After considering the idea of a bad bank operated by the FDIC and discarding that of systematic nationalization of banks, in February 2009 the Obama administration chose to combine capital injections and public guarantees with a program of purchases of distressed assets by mixed public/private funds. Treasury Secretary Geithner drew up a complex Financial Stability Plan consisting of seven new programs: the Financial Stability Trust (FST), hinging on a stress test for the main US banks and supplemented by a government Capital Assistance Program (CAP); Public-Private Investment Funds (PPIFs), the heart of the effort to institute public-private funds to clean up banks' balance sheets; the Consumer & Business Lending Initia-

tive, which includes a strengthening of the Term Asset-backed Securities Lending Facility (TALF), funded in November 2008 but never actually instituted; Mortgage Foreclosure Mitigation, intended to set governance constraints on banks enjoying federal support; Housing Support and Foreclosure Prevention, to aid mortgage borrowers; and the Small Business and Community Lending Initiative.

Many of these programs were already well defined when Mr. Geithner presented them on 10 February 2009 and could be launched at once, as the Financial Stability Trust. Yet the lack of a specific framework for the PPIF triggered extremely negative reactions in the domestic and international financial markets, threatening the possible collapse of the US banking sector. Only leaks of information on the PPIF and a more detailed official presentation on 23 March changed the climate and gave rise to optimism – probably excessive – on the course of the financial crisis. The main stock exchanges inverted their downward tendency, severely troubled US banks took advantage of the easing of accounting standards (to be discussed in section IV.1) and perhaps discounted the success of the PPIFs in order to announce positive earnings, and the supply of financial services recovered. Let us therefore examine the substance, the strengths and weaknesses, of the main programs making up the Financial Stability Plan.

The Financial Stability Trust went into operation in February with the beginning of stress testing at the nineteen US banks with more than $100 billion in assets. The tests should determine whether the amount and composition of a bank's capital are sufficient to offset the expected operational and investment losses in an exceptionally bad macroeconomic environment over a set period of time. Under the FST's standards, a bank's capital is adequate if its tier 1 capital does not fall below 6% of assets and the common equity component does not fall below 3% of assets even in the worst macroeconomic scenario. If a bank fails the stress test, it is given six months to bring its capital base up to standard. If it cannot raise funds on the market, it must issue preferred shares for the corresponding amount, with a slight discount from the stock market price. Through the Capital Assistance Program the Treasury will buy those shares which – if not redeemed within seven years – will then be converted into common stock; the bank can request this conversion at any time. The conversion rate will involve a 10% discount from the average stock price of the twenty business days prior to the announcement of the program on 10 February 2009. And unlike the Capital Purchase Program (CPP), under the CAP the return to preferred shares will be constant over time at 9%.

Elliott (2009b) judges the FST standards to be rigorous and the structure of government financing envisaged by CAP to be balanced, in that they ensure adequate capitalization without depriving private shareholders of a further chance to hold their property rights in the bank and without stopping the less undercapitalized banks from taking advantage of the market to procure the needed funds more economically. But stress tests, which are also envisaged under Basel 2 and are already being used in international banks' internal risk control processes, must not be reduced to a mere technical instrument; they must become an essential part of banks' organization and decision-making. In addition, the FST and CAP need to be accompanied by a "clean-up" of banks' balance sheets. This could be done by the PPIF, itself divided into two programs: the Legacy Loans Program (LLP), for banks' mortgage loans (including securitized mortgages), and the Legacy Securities Program (LSP), assigned to a broader spectrum of troubled assets and partly under the TALF. Both the LLP and LSP are intended to make banks' impaired securities tradable at their medium or long-term market value. And they seek to bring that value out through incentive schemes aligning public and private interests.

The LLP provides that one or more banks together offer mortgages, selected in cooperation with the regulators and the Treasury. Following the recommendations of experts, the FDIC guarantees coverage of a portion of the funds for the purchase of each pool of mortgages, for a fee. The portion cannot exceed six-sevenths of the total value of each pool of mortgages, the value being determined by a special auction open to the asset management companies created by an equal public-private partnership. The winner of the auction is the company making the highest bid; once this price is known, the bank can decide whether or not to transfer the mortgages. If the transaction does take place, the purchaser pays out of its capital, provided in equal parts by public and private investors, and by issuing debt, secured by the mortgage loans in question and taken up, for a predetermined share, by FDIC (Table 12). When this share is the maximum, then the capital of the purchasing company covers 14.3% and the FDIC financing 85.7% of the total expenditure for the given pool of mortgages. The public-private partnership thus takes on the nature of a hedge fund with a heavy debt exposure. The private investors in the new management companies may be individuals, investment funds, pension funds, insurance companies and other long-term investors. It is their responsibility to administer, under the FDIC's supervision, the pool of mortgages acquired until their complete liquidation.

The LLP's modus operandi therefore implies that the prices of the auctioned mortgage assets will be determined by private operators incentivated by generous

Table 12

Legacy Loans Program

Capital	Financing
Public-Private Investment Funds	**Funds Will Raise FDIC Guaranteed Debt**
• Combines USG and private capital	• FDIC Will guarantee debt • Leverage up to 6:1

Sample Investments Under the Legacy Loans Program

Step 1: If a bank has a pool of residential mortgages with $100 face value that it is seeking to divest, the bank would approach the FDIC.

Step 2: The FDIC would determine, according to the above process, that they would be willing to leverage the pool at a 6-to-1 debt-to-equity ratio.

Step 3: The pool would then be auctioned by the FDIC, with several private sector bidders submitting bids. The highest bid from the private sector – in this example, $84 – would be the winner and would form a Public-Private Investment Fund to purchase the pool of mortgages.
Step 4: Of this $84 purchase price, the FDIC would provide guarantees for $72 of financing, leaving $12 of equity.

Step 5: The Treasury would then provide 50% of the equity funding required on a side-by-side basis with the investor. In this example, Treasury would invest approximately $6, with the private investor contributing $6.

Step 6: The private investor would then manage the servicing of the asset pool and the timing of its disposition on an ongoing basis – using asset managers approved and subject to oversight by the FDIC.

Source: FDIC

public financing. As the Treasury Secretary sees it, government intervention should leverage private capital enough to provide an initial fund of $500 billion that can be raised to $1 trillion and, together with the pressure of competition, and to produce bid prices that are attractive to the banks selling the mortgages, which would thus be induced to disclose their distressed loans and sell them on the market.

The second program under the PPIF, namely the Legacy Securities Program, is itself divided into two parts. It will grant non-recourse loans for the purchase of impaired consumer credits and distressed residential or commercial mortgages originally rated AAA but it will not fund the purchase of structured securities such as CDOs (Table 13).

In the first part of the Program investors (including private investors) take loans under the TALF (with a new endowment of about $1 trillion) granted by the Treasury and the Fed. The maturity, terms and conditions, and types of borrowers have not yet been decided. But it is known that the collateral for the loans will be the troubled securities purchased and that the borrowers have no repayment obligation beyond the effective value of those securities (as noted, the loans are "non-

Table 13

Legacy Securities Program

Capital	Financing
Public-Private Investment Funds	**Leverage from Federal Reserve**
• Combines private capital with USG capital and potential USG leverage	• Builds on existing TALF framework

Sample Investments Under the Legacy Loans Program

Step 1: Treasury will launch the application process for managers interested in the Legacy Securities Program.

Step 2: A fund manager submits a proposal and is pre-qualified to raise private capital to participate in joint investment programs with Treasury.

Step 3: The Government agrees to provide a one-for-one match for every dollar of private capital that the fund manager raises and to provide fund-level leverage for the proposed Public-Private Investment Fund

Step 4: The fund manager commences the sales process for the investment fund and is able to raise $100 of private capital for the fund. Treasury provides $100 on a side-by-side basis with private capital and will provide a $100 loan to equity coinvestment the Public-Private Investment Fund. Treasury will also consider requests from the fund manager for an additional loan of up to $100 to the fund.

Step 5: As a result, the fund manager has $300 (or, in some cases, up to $400) in total capital and commences a purchase program for targeted securities.

Step 6: The fund manager has full discretion in investment decisions, although it will predominately follow a long-term buy-and-hold strategy. The Public-Private Investment Fund, if the fund manager so determines, would also be eligible to take advantage of the expanded TALF program for legacy securities when it is launched.

Source: FDIC

recourse"). Further, any private investor, even if not granted a loan, may purchase the securities indirectly through access to the TALF. The second part of the LSP program envisages that the Treasury will select five or more private investment managers, preferably meeting the following requirements: headquartered in the US, at least $10 billion in assets under management, experience with the type of troubled assets involved, and a plan for enhancing the value of these assets. The managers selected, qualifying as PPIF fund managers, have three months to raise the resources needed to manage the new funds from private investors, including retail investors. The Treasury will match the resources raised from private investors. Each of these Public-Private Investment Funds, furthermore, can be funded by the Treasury for an amount equal to the capital provided by the private sector or, when certain strict standards are met, equal to the total (private and public) capital raised. Depending on the financing from the Treasury and on specific conditions, a PPIF may also be eligible for TALF funds. The entire amount of funding has a maturity equal to the life of the PPIF itself, but it can be repaid in installments as assets are liquidated. Once it is operational, the PPIF has full discretion over its investments, which should nevertheless tend to be long-term.

To complement these key programs, the Financial Stability Plan calls for a series of additional initiatives. We have already mentioned the strengthening of the TALF. The program, dedicated to governance, sets binding constraints on dividend payments (at most $0.01 every four months) for the banks that draw on a PPIF or other special government assistance. And it prohibits banks accessing the CAP from purchasing own shares or the shares of healthy companies. It further requires banks that take government funds to comply with the compensation ceiling of $500,000 a year for top managers set in early February. There is also a program to assist homeowners who despite financial difficulties have made good-faith efforts to honor their mortgage debt (some 9 million people). Financed by $275 billion from the TARP ($75 billion from the TARP itself and $200 billion appropriated for Fannie Mae and Freddie Mac), this program is enhanced by the possibility of court action for the unilateral restructuring of mortgages where debt service exceeds 38% of the debtor's income (or 31% if there is government aid). Finally, there are additional programs to limit mortgage defaults and support small businesses.

The Financial Stability Plan appears to be well designed. It recognizes that the return of the US banking sector to health, while requiring a wide range of instruments, must be founded on three main elements: (i) bringing out the impaired assets held by the banks (stress testing); (ii) balance sheet clean-up at long-term equilibrium conditions (PPIF); and (iii) government recapitalization of undercapitalized banks (CAP, etc.). The Plan also seeks to accomplish the second of these three goals by means of a set of incentives based on public support for private choices. Yet in the light of principal-agent models with incomplete and imperfect information (as in Kreps, 1990, chapters 16-18), it is precisely this incentives structure that represents the main weakness of Geithner's plan. The LLP and the LSP design risk-sharing schemes between a public principal and private agents that should give incentives to the latter to determine a long-term equilibrium price vector for the bank assets being auctioned off. Yet – in violation of the fundamental rules of principal-agent models in conditions of uncertainty – in these programs the government contribution transferred to private agents is not a known function of "signals" that are common knowledge to principal and agents, and that indicate (on a probabilistic basis) the deviations of the undervalued current price vector from the long-term equilibrium price vector of the banks' troubled assets. Furthermore, the programs fail to take any account of the presence of another type of agent, namely the banks offering the assets. The risk-sharing rule of

the LLP and LSP would thus appear to be arbitrary, and as such highly likely to give private agents an incentive to set a distorted price vector.

Even if theoretically significant, these drawbacks are in practice unavoidable. However, such authoritative commentators as Krugman, Sachs, Stiglitz and Zingales, among many others, do not interpret the PPIF as an incentive mechanism in which the principal (government) must align the interests of the agents (private) with its own objective function (cleaning up banks' balance sheets). Instead they see it as a mere problem of distribution between the private and public sectors of the expected gains and losses from a given transaction. Their conclusion is that by putting more than 90% of the risk in every auction on government, the LLP scheme is so generous that it distorts the price vector for impaired assets upwards and thereby creates an enormous surplus paid for by the community in the form of federal debt (implicit in present budgets and explicit in future ones). This surplus, they say, will be split between private agents and the banks selling the asset in proportions that depend on the degree of competition in each auction. The same reasoning applies to the LSP incentive scheme, although perhaps on a smaller scale. In this view, that is, the two programs represent a huge give-away by the Obama administration to the US financial sector – the socialization of private losses.

My own argument does not lead to any such precise or drastic conclusion, in that the LLP and LSP are best represented as incentive schemes, and the two programs produce an analytically indeterminate model. However, there is some indirect evidence in favor of Stiglitz's criticism, in that it brings out the dangers of moral hazard and adverse selection. Some large US banks that have taken federal funds and admitted to holding large amounts of troubled assets have asked to be private buyers instead of (or as well as) sellers at the auctions of those assets. This kind of opportunistic behavior can be blocked by a revision of the PPIF to prohibit any institution from playing two opposite roles and by strict stress testing and the consequent introduction of severe screening of potential private partners. The fact remains that this is a sign that the PPIF incentive scheme is over-generous.

Despite this criticism, it must be stressed that, if the PPIFs and the Financial Stability Plan overall were to prove ineffective or socially unacceptable as too tilted in favor of the banks, the financial and "real" crisis could worsen dramatically. The countries of the European Union, which towards the end of 2008 had

drafted more powerful interventions than the United States, now do not appear to be offering equally sophisticated alternative plans. For example, the British Banking Act of 2009, approved in March, carefully defines the state of insolvent bank (i.e. one unable to conduct its business in compliance with the ordinary regulatory requirements) and the conditions preventing liquidation (i.e. a high risk of systemic impact on the payment system or on savers' confidence). But in terms of positive proposals it merely entrusts the stabilization of insolvent banks that cannot be wound up to three options that do not appear to overcome the limitations of earlier State intervention: transfer of a share of their equity to a private buyer, temporary nationalization, and takeover by a bridge bank directly controlled by the Bank of England.

The only project that might provide an alternative should the Geithner Plan fail is that under discussion in Germany. Germany's is the euro-area financial system most vulnerable to the crisis, and the German State has sustained the largest outlays. So it is no surprise that the government is trying to apply a law for State expropriation of failed banks having no other means of salvage, with partial compensation of shareholders through the Soffin fund; or that it has threatened drastic measures should the takeover bid for Hypo Re fail or the problems of KfW (a public development bank, among other things) get worse. The core of the new plan for intervention in Germany, however, should be the formation of a "bad bank" inside every troubled banking group. These bad banks, which would acquire most of their group's illiquid, high-risk assets, would be backed by a government guarantee and, if necessary, State capital injections. Here too, Commerzbank could pave the way. It has already estimated the value of its troubled assets (€55.4 billion) and grouped them all together in a special division.

We remarked above on the greatest strength of decentralized bad banks – the capacity to clean up banks' balance sheets without taking the management of troubled assets out of the hands of those with an informational advantage or having, immediately, to set long-term prices, given that all the transfers take place under the same ownership umbrella. To paraphrase Hicks (1973), this is a sort of precautionary position, intended to buy time in a situation of great uncertainty. In the case of government guarantees and capital injections, this does not preclude distortions in favor of the banks. Every troubled bank would have an incentive to inflate the accounting value of its troubled assets, thus strengthening its balance sheet and exploiting the government

cover (either guarantee or capital injection) for its own bad bank. These distortions could be attenuated if, as some German ministers have proposed, the program for the transfer of troubled assets to the bad banks were subject to the same constraints as the American LSP – namely, the ineligibility of structured securities such as CDOs and CDSs. The distortions would be very largely overcome if the bad banks had no public support (except guarantees for depositors) and if they were obliged to operate as "closed-end funds" with a share of the equity and other liabilities of the originator bank proportional to the share of assets transferred (Zingales, 2009). The possible failure of the bad bank would require very strict control on the risks proportionately taken on by its creditors and the consequent relative advantage proportionately obtained by its shareholders.

III.3 The Italian case

Though Italy's banking sector has indirectly been affected by the financial crisis, its problems are not comparable to those of many American and European banks, but their severity could increase as the recession deepens in the course of 2009. It is therefore worth looking more closely at the anomalies of the Italian case, for the same anomalies that have allowed policy measures to be relatively bland now betoken the need for a more efficient allocation of the country's financial wealth.

The Italian banking sector was not swept up in the degeneration of the originate-to-distribute model (Banca d'Italia 2008; Draghi 2008b). In the first two phases of the crisis it was not directly involved in the US high-risk loan markets. At the outbreak of the crisis, in fact, the largest Italian banks held a limited amount of securities or guarantees deriving from US subprime mortgages and other high-risk loans (just over €5 billion in the aggregate), and up to the collapse of Lehman they had made "only" €4.5 billion of writedowns to these exposures. What is more, before the end of 2007 the few Italian banks with financial commitments to off-balance-sheet securitization vehicles had taken the high-risk assets back onto their balance sheets or sold them. Consequently, Italian banks' leverage was lower than the European average and their deleveraging has been less pronounced. In Italy, bank lending continued to expand across the board, albeit at decreasing rates, through the summer of 2008. In the fourth quarter of 2008 and the first of 2009 lending growth remained positive, but slowed further, approaching zero

for some categories of borrower; moreover, the costs on debt contracts remained generally low, though displaying greater dispersion. There is some evidence that the less creditworthy borrowers were subjected to tighter credit rationing.

Even if attenuated, the impact of the financial crisis weighed on Italian banking groups' financial statements for 2007 and 2008 (Banca d'Italia 2008; ABI 2009). The illiquidity of the international markets drove up funding costs (denting net interest income), eroded trading revenues (denting gross income), and depressed the value of securities portfolios. In particular, despite the huge injection of liquidity by the ECB, upward pressure was exerted on banks' funding costs by the difficulty of rolling over the entirety of Italian banks' international debt and the resulting need to issue a greater volume of bonds, deposits and other liquid liabilities on the domestic market at unfavorable supply-side terms and conditions. The fall in trading revenues, aggravated by the structural problems of the asset management sector, was reflected in a drastic decrease in income from services, which plunged by more than 20% in the two years. The Italian banking industry's return on equity (ROE) fell by almost 3 percentage points in 2007 and by nearly 7 in 2008. In the first quarter of 2009, net profits were down by almost 60% on a year earlier.

To complete this picture of the Italian banking sector in the financial crisis, let us consider another four points. First, the impressive round of bank mergers and acquisitions in Italy over the last twelve years has been based mostly on exchanges of shares and thus has not strengthened the capital base of the newly enlarged groups. Second, as noted in section II.2, whereas the other main EU countries introduced programs for the public recapitalization of financial intermediaries as early as the start of October 2008, the Italian government implemented its initiatives six months later. Third, in the phase of the financial crisis that opened with the collapse of Lehman, some large Italian banks were touched by financial scandals (for example, the Madoff affair). Fourth, in the early months of 2009 several countries in eastern European risked falling into severe instability (see section III.1); and the two largest Italian banking groups have a major presence in the region (Unicredit and Intesa Sanpaolo derive, respectively, about 25% and 11% of their total income from it). So if Italian banks, though holding a modest portion of problem securities and subject to exceptionally stringent prudential standards of capital assessment saw their share prices plunge even more steeply than the international average between October 2008 and March 2009, this is less paradoxical than it might seem.

To inquire further into this apparent paradox, let us elaborate on the first two of the four points just cited. The Bank of Italy has shown that the subset of the largest Italian banks and, *a fortiori*, that of medium-sized and small banks have maintained capital ratios above the prudential minima during the different phases of the financial crisis. However, already in the first half of 2008 Italian banks' tier 1 capital ratio was about half a percentage point below the European average. At the height of the financial crisis, when European government programs focused on recapitalizing solvent as well as critically weak intermediaries, capital ratios were well above the regulatory minima: the tier 1 capital ratios of the largest banks stood at 9% or higher in the United Kingdom and exceeded 8% in France. Consequently, the now wider gap (of up to 2 percentage points) to the detriment of the Italian banks, due to legislative delay and, to a lesser extent, banks' reluctance to launch capital-raising operations and open up their share ownership, was perceived by the market as a factor of fragility. The fact remains that until the fourth phase of the crisis only one Italian banking group carried out a capital increase Unicredit, with a €5.5 billion rights issue at the start of October 2008; and only one group, Unicredit again, opened up its ownership structure to a sovereign fund (in this case the Libyans, who acquired a 4.23% stake).

All in all, this "photograph" of the Italian situation shows a banking system in relatively good health but weighed down by legislative delay and by a low propensity to recapitalize – and this despite the fact that the Italian government had been among the first to act, issuing two decree laws as the crisis precipitated: Decree Law 155 of 9 October 2008 and Decree Law 157 of 13 October 2008. A first problem is that these decrees only became operational when the Ministry for the Economy and Finance issued implementing decrees on 27 November and then, a week later, on 4 December, were merged and converted, with amendments, into Law 190/2008. Moreover, these decrees were aimed at preventing bank failures and increasing some protections for savers, but not at strengthening the operations of viable and active banks. In particular, Law 190/2008 empowers the Ministry for the Economy and Finance to buy preference shares of banks with capital shortfalls ascertained by the Bank of Italy, even if they are under controlled management or provisional administration. A necessary condition for public recapitalization is the adoption by the banks concerned of a three-year stabilization and strengthening program approved by the Bank of Italy. The shares purchased by the Ministry have priority over all other shares in the distribution of dividends but do not carry voting rights. Law 190/2008 also

lays down that the Ministry is to offer: a 36-month guarantee on deposits to backstop the Interbank Deposit Guarantee Fund; a guarantee, at market terms, on bank liabilities with a maturity of up to 5 years issued after 13 October 2008; swaps for 2009 between government securities and financial instruments held by banks; and a guarantee on transactions undertaken by Italian banks in order to obtain eligible securities for refinancing with the Eurosystem.

Besides infringing many provisions of existing legislation (for instance, the prerogatives of the preferred shareholders' special meeting, the restrictions on ownership of cooperative banks), Law 190/2008 wavers between tying the State's hand and giving it intrusive powers. Two examples will suffice: first, the Ministry for the Economy and Finance improperly forgoes voting rights on the shares it purchases but then reserves the right to veto any change to an investee bank's stabilization and strengthening program and to determine its own other administrative rights by way of a ministerial decree; second, the law give the Bank of Italy the task of approving the dividend policy that investee banks must specify in their initial programs but then fails to establish sanctions for non-compliance with this rule. Furthermore, the costs of the guarantees and swaps offered by the Ministry are at a premium to market costs: 50 basis points above the rate on the individual bank's CDSs for the first two years and 100 points thereafter, and a commission of 100 basis points for swaps. Seeing that no Italian banking group has found itself in a situation of bankruptcy and been forced to resort to State aid, it goes without saying that Law 190/2008 has remained a dead letter.

It is less easy to understand why the Italian government waited until 29 November before adopting a measure (Decree Law 185, Article 12) for the recapitalization of major banking groups active in the market, along the lines of those introduced by the other major countries of the European Union in early October; or why, after that decree was ratified on 28 January 2009 as Law 2/2009, the Minister for the Economy and Finance let another month go by before issuing the implementing decree on 25 February. In any event, making only partial use of the battery of alternatives offered by the new provisions of company law in Italy, Law 2/2009 empowers the Ministry to purchase non-voting hybrid instruments issued by listed banks or bank holding companies whose capital ratios meet the minimum standards. The instruments are perpetual but may be redeemed or converted into ordinary shares. The Ministry may go ahead with the purchase after consulting the Bank of Italy about the economic terms of the transaction and the inclusion of the instruments in the issuer's tier 1 capital.

It is up to the individual banks to decide whether or not to proceed with this type of recapitalization, which cannot exceed 2% of the value of risk-weighted assets and must be covered for at least 30% by private investors (of which not more than one fifth by the largest current shareholder). It is also up to them to decide whether and when to redeem the hybrid instruments or convert them into common equity, subject to approval by the Bank of Italy. In its turn, the Ministry may undertake to purchase the instruments only if the transaction is consistent with market conditions, does not entail excessive risks (considering that the hybrid instruments come after other debts in case of bankruptcy liquidation), strengthens the bank's balance sheet position and ensure adequate flows of financing to the economy. For these purposes, the law and the implementing decree require issuer banks to adopt a code of ethics that subordinates executive compensation and dividend distribution policies to long-term profitability and the safeguarding of bank capital, and to subscribe to a memorandum signed by the Ministry and the Italian Banking Association (ABI) with a view to ensuring adequate bank credit especially to households and small and medium-sized enterprises.

In general, the Italian approach was not greatly dissimilar to the measures taken in France and other countries of continental Europe. Yet it succeeded in being at once more vague and more intrusive. More vague, because the law did not cap the State's potential financial commitment and because it left it to the implementing decree to specify all the terms of the contract between issuer banks and the State. More intrusive for at least three reasons: (i) unlike the other European programs for the public recapitalization of banks, provision was made for the hybrid instruments to be purchased directly by the Ministry, not by an intermediate public institution; (ii) the terms of contract established by the implementing decree were so complex that assessing them was difficult (more on this below); (iii) the decision to make selected prefectures responsible for monitoring the evolution of credit at local level involved an institution devoid of specific expertise and threatened to interfere both with individual banks' decisions on operations and allocation and with the tasks of the regulatory authorities. This third matter seems especially serious. The new "observatories" are supposed to supply the prefects with data on bank lending disaggregated by local market and economic category of borrower and thus to be the basis for extensive, detailed controls and for periodic reports to Parliament on the financing of the economy. They present several dangers: overlap with the data already systematically gathered and worked up by the Bank of Italy on a much firmer methodological and

analytical basis; public disclosure of sensitive data that today are already available at the appropriate levels of aggregation; discrimination between banks that have issued instruments purchased by the Ministry and those that have opted not to issue them and could therefore escape oversight by the prefects.

Although the Ministry and ABI finally signed the envisaged memorandum on 25 March and the observatories were duly established at the prefectures on 31 March, by mid-May 2009 the law had yet to produce tangible results. Its implicit objective was to raise the major banking groups' tier 1 capital ratio to 8%, but to date only two Italian banking groups have formally applied to the Ministry to issue hybrid instruments: Banco Popolare Italiano, for €1.45 billion, and MPS for €1.9 billion. Most of the other listed banking groups have expressed interest or obtained authorization from their boards but are still weighing the alternatives and negotiating with the Ministry. Thus, even if all the major listed groups eventually decide to apply, the ensuing capital strengthening could well come too late, with a lag of more eight months with respect to the public recapitalization of the French, British and German banks.

The caution of the Italian banking groups is understandable. Although the obligations imposed on them by the law and the implementing decree, through the memorandum and the code of ethics, are primarily of a moral nature and not backed by administrative sanctions, they are very considerable all the same. These obligations concern, in detail: new lending over the next three years; support for business initiatives compatible with sound and prudent banking; strengthening of the guarantee fund for loans to small and medium-sized enterprises; suspension for one year of mortgage repayments by workers who are receiving unemployment benefits or short-time compensation; and corporate policies on dividend distributions, executive pay and severance packages. Further, the issuers of hybrid instruments incur financial costs: assuming a minimum reference rate of either 7.5% or 300 basis points over the yield on 30-year Treasury bonds and a maximum rate of 15%, these costs depend (under the minimax rule) on the redemption or conversion date and on the corresponding dividends paid on the ordinary shares. What is more, the redemption price, which has a floor of 110% and a ceiling of 160% of the face value of the instruments, depends (again under the minimax rule) on the financial costs actually incurred, on the performance of the share in the month preceding redemption and on the redemption date. Today, this set of obligations and costs, which in October 2008 would have been advantageous vis-à-vis the uncertain outcome

of a private recapitalization, need to be compared with the cost of more feasible market operations and, given the relative scarcity of problem assets in Italian banks' balance sheets, with the possibility of access to other liquid funds.

Partly owing to the lack of public support in the most difficult months (October 2008-February 2009), the largest Italian banking groups opted to rely on the liquidity supplied by the ECB. Making only marginal use of the swaps made available by the Bank of Italy starting in mid-October 2008, Unicredit, Intesa Sanpaolo and several other banks built up a huge stock of securities eligible as collateral for the ECB's generous refinancing operations by securitizing mortgages bought back from securitization vehicles. Unicredit carried out one securitization worth almost €24 billion in November 2008, Intesa Sanpaolo carried out three for a total of €20 billion in the second half of December 2008 and early January 2009, and another nine securitizations amounted to €11 billion. Though debatable, this approach had the virtue of preventing the slowness of public action from penalizing Italian banks vis-à-vis European competitors with much more problematic initial situations. It also circumscribed a serious risk inherent in the most intrusive parts of Law 2/2009 and its implementing provisions (outside pressures on loan allocation, observatories and monitoring by prefects, memoranda of intents), namely, a reduction of banking activity to the provision of a public service in the most traditional sense of the term.

The risk of administrative control of the Italian financial market has been heightened by a series of legislative and regulatory measures taken in the past few months that have undermined important innovations introduced in the 1990s, notably by the Consolidated Law on Finance. Among these worrisome developments, new measures have virtually repealed the passivity rule in takeover bids; raised from 3% to 5% the ceiling on purchases that investors holding between 30% and 50% of the share capital can make without being obligated to launch a takeover bid; lowered to 1%, at Consob's discretion, the minimum percentage shareholding in listed companies that triggers the disclosure requirement; and doubled to 20% the percentage of its own shares that a company may hold. The motivation given for these initiatives is the need, in times of crisis, to protect the ownership structure of Italy's financial and productive system from the supposed threat of outside acquisitions or speculative operations. But in fact, by creating incentives for corporate defenses and positions of rent, they have strengthened administrative controls

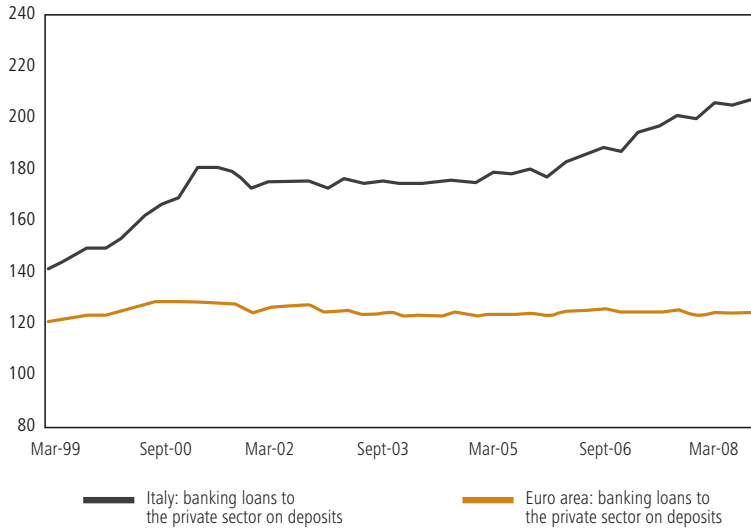
to the detriment of efficacious market regulation.

Still, despite the limits and delays of State action, the Italian banking sector has weathered the crisis a good deal better than the international financial system. Without underestimating the merits of truly prudential supervision, this happy circumstance can be traced back to the characteristics of the consolidation and changes of ownership that took place in the years from 1992 to 2007. For good or for ill, Italian banks retained their specialization even while revolutionizing their organization and expanding their range of services. As the anomalous growth in bank branches and bank lending in the present decade also indicates, the strength of all of Italy's banking groups, including the largest, continues to be based on strong local roots and traditional retail and corporate business. Whereas for the European banking sector as a whole investment banking and other financial activities have largely become more important than traditional lending, for Italian banks lending continues to play the pivotal role Given the characteristics of the present crisis, Italian banks' relative "backwardness" has paid off. Nevertheless, it poses a problem regarding how to exit the crisis and raises a more structural question.

Since the end of the 1990s Italian banks' lending has increasingly outstripped their deposits (Figure 9). This difference, which is far more pronounced than in the rest of the euro area, is the result of Italy's particular bank-centered system: a productive structure skewed to smallness, with firms' consequently highly reliant on bank financing; a low propensity of non-financial firms, even medium-sized and large ones, to seek stock-exchange listing; a corporate bond market confined to a handful of large listed companies and rocked by recurring scandals. Before the financial crisis erupted, Italian banks compensated for the imbalance between their loans and deposits by raising funds abroad, often through the interbank market, and by directly tapping private sector financial wealth at home (Italy's ratio of household financial assets to GDP is among the highest in the world). The direct allocation of banks liabilities in the retail market was facilitated by the structural weakness in Italy of the most typical institutional investors (pension funds and life insurance companies in particular) and by the consequent marginal role of the institutional segment in the domestic financial market. As a result, the share of bank bonds (plain vanilla and structured) sold directly to retail investors was much higher than in the other countries of continental Europe (see Banca d'Italia 2008, chs. 14 and 15).

Figure 9

Loans/deposits ratio of the banking sector in Euro area and in Italy



Source: Federico, Giannangeli and Ozzimo - 2009

The crisis is making elements of weakness emerge on both sides of Italian banks' balance sheets. On the liabilities side, it has caused a sharp contraction (-10%) in international funding after years of robust expansion. This has spurred Italian banks to exploit not only the liquidity supplied by the ECB but also savers' "flight to liquidity". They have supplemented ongoing retail sales of bonds with shorter-term fund-raising (deposits, repos, and so forth), displacing medium-term instruments from financial portfolios. In this way, even in the most acute phases of the crisis, Italian banks have overcome the bottlenecks in procuring liquidity, but they have also incurred an increase in funding costs and a decrease in trading profits. On the assets side instead, the crisis, with the usual lag, has begun to weigh on loan quality. In the last quarter of 2008 the ratio of new bad debts to the stock of loans reached a five-year high. The increase in (expected) loan losses will lead to higher provisioning and value adjustments and will therefore adversely affect Italian banks' future earnings.

These observations highlight one of the problems that Italian banks must face in order to overcome the crisis. Given their traditional specialization, they cannot afford to "strangle" the real economy, but neither can they afford to run exces-

sive risks on loans that could end up worsening their balance sheet assets. Thus, during the two years 2009-10 Italian banks will have to solve a very complex puzzle: how to defend their profitability in the face of a reduction in net interest income due to low lending proceeds and higher funding costs, together with a fall in income from services and an increase in provisioning. It is inconceivable that the solution can be compatible with abundant flows of low-cost credit; it is more reasonable to expect a selective allocation of loans and an increase in the premium demanded to take on market risks. Presumably, Italian banks will also seek to compress their operating costs by making more rational use of staff and to increase their margins on services.

Besides being hard to solve, these problems also raise a more structural question: how did Italian banks achieve profitability roughly on a par with their European competitors in the years from 1998 to 2006 without expanding strongly into the then highly profitable business of investment banking? The answer probably lies in the high margins that Italian banks earned on services to households and, in part, to small and tiny firms. After the steep slide in bank profitability in the four years 1993-96, the sector's recovery in 1997-2000 was driven largely by growing revenues from asset management; and the stabilization of its profitability at high levels in 2001-06 was based on the progressive replacement of Italian investment funds by bank bonds (often structured), which on average offered low returns for the investors but generated high revenues up front for the banks. In other words, the happy circumstance of the Italian banking sector's resilience during the crisis is possibly based on the vices of its relationship with households. Confirmation of this by robust empirical evidence would have a very negative implication, pointing to an inefficient allocation of Italy's financial wealth, which should be used instead to raise the low potential growth rate of the nation's economic system.

CHAPTER IV

TOWARDS A NEW REGULATORY REGIME

Towards a new regulatory regime

IV.1 Linking short-term intervention and long-term measures

Apart from the criticisms that can be made of Geithner's Financial Stability Plan and the German "bad bank" project, there are doubts about their feasibility. The setting up of bad banks within Germany's troubled banking groups faces the hurdle of the indeterminate amount of impaired securities to be transferred to them and the indefinite size of the attendant public commitment. As for the US initiative, which is at a more advanced stage, the resources available to the Treasury at the present (early May 2009) are limited to the balance of the TARP, or less than $130 billion.

Those resources must go first of all to cover the bank capital shortfalls revealed by the FST stress tests (section III.2). The Treasury and the Fed have declared on more than one occasion that none of the nineteen largest American banks will be allowed to fail. However, the stress tests found that ten of those banks, though not insolvent, will have to cover capital shortfalls amounting to almost $75 billion in the next six months to face the losses expected for the next two years. In particular, Citi will have to come up with $50 billion, although the figure falls to about $6 billion taking account of the commitments already made for the conversion of publicly-and privately-held preferred stock into common equity and for the disposal of business units (section II.3). Another four big banks need to carry out capital increases totaling more than $60 billion (Bank of America for $33.9 billion, Wells Fargo $13.7 billion, GMAC $11.1 billion and Morgan Stanley $1.8 billion), and five smaller banks among the top nineteen will have to raise about $8 billion in all. Morgan Stanley and Wells Fargo reacted at once, raising $11 billion of liquidity through equity and debt issues. Still, it is likely that the ten capital-short banks, taken together, will not be able to raise the entire amount in the market; and, despite the initial rigor, it is possible that the stress-test results are the fruit of a compromise and underestimate the banks'

actual capital requirements. In these circumstances, the banks in difficulty will have to resort to public support under the Capital Assistance Program.

There are two other points to be considered. A number of the almost 8,000 US banks not large enough for the mandatory stress test are also in trouble; these smaller banks will have to raise nearly $25 billion of new capital in order to satisfy the regulatory requirements. Second, the Financial Stability Plan hinges on the implementation of the Public-Private Investment Program and various other programs involving large public outlays. Although the Treasury Secretary has not displayed surpassing concern about the availability of the requisite resources, the financial constraints could prove stringent enough to impede the carrying out of several projects.

Some observers have argued that the constraints will not be binding for the PPIP because the real purpose of that program is not to organize and finance auctions for a substantial portion of the mortgages and mortgage-backed securities owned by the banks, but rather to enable the exchange of a small portion of these securities, which, by setting credible prices and increasing the confidence of the buyers, would revive market trading. This argument does not stand up, however, because the mortgage-based derivatives are highly heterogeneous and are traded in separate market segments. Therefore, given that the CAP and the PPIP will not be able to ensure a sufficient clean-up of banks' books, it becomes unavoidable to identify capital strengthening measures that limit the need for market funding or additional public resources. One possibility, already mentioned, is to convert the preferred stock held by the Treasury into common equity, which would also have the beneficial effect of improving the quality of bank capital and making the division of the costs between old and new shareholders and bondholders fairer. As noted by the IMF (2009), many of the public recapitalizations in the third and fourth phases of the crisis were carried out by way of purchases of hybrid securities that did not dilute the old shareholders' position but carried high financial costs for the issuers and discouraged the entry of new private investors. Another possibility is to reduce the protection of creditors, which so far has almost always been a priority: the creditors could be given an incentive to swap their debt securities for equity.

On the face of it, it might appear that the simplest course for the Treasury remains that of accelerating the recovery of part of the public funds disbursed between October and December 2008. Giving substance to this possibility are

the 2009 first-quarter results reported by most of the major US banks, with the notable exception of Morgan Stanley. Citi, Goldman Sachs, Wells Fargo, JP Morgan and Bank of America beat the most optimistic forecasts and recorded high earnings; and nearly all these banks (including Morgan Stanley) said that they wanted to repay the TARP funds in the near future, to escape the severe constraints placed on executive compensation and management policies.

However, the performance of US banks is darkened by more than one shadow. The accounts of many banks conceal potential future losses on consumer credit (for instance, credit-card and car-purchase loans) and on mortgages, inflate earnings with one-off proceeds (partial disposals), and provide sketchy information on the balance sheet situation. Further, the results were based on the high margins on proprietary fixed-income trading (speculation on falling rates and narrowing credit spreads) and investment banking operations, which entailed pronounced risk-taking. This means that Goldman and many other major US banks are using public resources and guarantees to reproduce the speculative behavior that brought on the financial crisis. We have evidence of this in the fact that at Goldman the contribution of traditional activities to profitability in the first quarter of 2009 was modest, while volatility measures rose to new highs. Conversely, Morgan Stanley's "disappointing" results stemmed largely from its decision to break partially with the risky choices of the recent past.

But the most sinister shadow on the US banks' brilliant first-quarter results is cast by the further changes in US accounting standards. At the end of 2008 the accounting-standard setters had enfeebled the fair-value principle in the United States and Europe, to limit its pro-cyclical bias (section II.2). Then, at the beginning of April 2009, the United States decided unilaterally to give intermediaries more leeway in valuing assets in periods of market turbulence, which, moreover, was defined in very vague terms (limited operations, excessive volatility, not-up-to-date information, and so forth), and loosened the rules on the recognition and tax advantages of permanent losses; these rules changes were made retroactive so that they could be applied to the 2009 first-quarter reports. Consequently, while the G20 meeting in London was recommending that accounting-standard setters should assign more weight to the holding period and the liquidity of securities in the portfolio but reaffirmed the centrality of the fair-value principle, US banks received permission to revalue impaired assets, erase losses from their income statement and render otherwise uncontrollable debts sustainable. What is more, if it served to compress their costs, they continued

to be allowed to use mark-to-market criteria for other financial statement items (for example, writedowns to debt securities). Some analysts estimate that all this pumped up US banks' profits by 20%. Besides, in their first quarter reports, both Citi and Goldman drastically reduced their writedowns.

To make matters worse, Goldman exploited its transformation from an investment bank into a bank holding company to isolate its accounts for the month of December 2008 and charge losses to them. These accounting artifices triggered Gresham's law of "bad money driving out good". The Ecofin Council, meeting in Prague a few days after the G20, denounced the competitive distortions of the US decision on accounting standards, but instead of stigmatizing the substance of that decision the Ecofin called on the European accounting-standard setters to cooperate with their US counterparts in order to eliminate the disparities of accounting treatment. In addition, bolstered by its high quarterly earnings and by reserves of liquidity swollen to more than $160 billion by the Fed's policy of credit easing, Goldman is heading the group of US banks that intend to gain distorted market advantages over competitors in greater difficulty or subject to greater constraints (for example, by capturing the best talent available) and to restore, from positions of strength, the pre-crisis modus operandi. Buying back the preferred stock held by the Treasury, though not forgoing public guarantees on the bonds issued, is a key link of the strategy that the character in the novel *The Leopard* put as "Let everything change so that nothing changes". This strategy's aim is to certify that the banks able to repay the funds no longer present systemic risks and thus need no public tutelage.

Besides being premature, this way out of the financial crisis would mark a restoration of the *status quo ante* and produce a host of negative effects. In the short term, it would weaken the clean-up of bank balance sheets, limit the ability of the banks to raise private capital, encourage the defense of the old shareholders' privileges and reinforce deleveraging; in the long term, it would vitiate any attempt to reform the financial markets' rules of operation. The US Treasury therefore correctly interpreted its regulatory role in underscoring that the choice of repaying public funds is not up to the debtor banks alone; it must also indeed, above all be assessed from the standpoint of the systemic stability and efficiency of the financial markets. In this sense, it is proper to make repayment by the largest banks conditional on their stress-test results and their ability to fund themselves in the market without public guarantees; and it is advisable

to prevent repayment from leading the same banks to neglect the transparency of their balance sheet assets and to protect their accounts through excessive cutbacks in lending to the private sector.

The selection of their borrowers is, of course, up to the individual banks, and there are good reasons for lenders operating in a crisis situation to be prudent. Yet Goldman Sachs and JP Morgan, which will nonetheless soon be allowed to repay the public funds thanks to the good results of their stress tests, should be placed squarely before the following fact: taken together, the US banks that received the largest share of public support cut their lending by a percentage more than double the system average, and the reduction was particularly sharp in the case of Goldman Sachs and JP Morgan.

If some US banks are seeking to revert to the distorted behavior that spawned the financial crisis, there is also a threat of opposite sign: the temptation of governments, particularly in Europe, to become wardens of the national financial system through bureaucratic intrusions in bank governance that tend to turn banks into mere dispensers of public services and thus mark a discontinuity with respect to the regulatory trends of the last thirty years in Europe and the United States. Two choices that have characterized most of the public interventions in banks can be read in this way: the acquisition of hybrid securities rather than common stock, and the assertion of public ownership's weight not in appointing a part of banks' boards but in requiring managements to sign letters of intent. A consequence is that scant attention has been paid to linking short-term support measures with the revamping of regulation in the longer term. The creeping bureaucratization of financial intermediaries, if it builds up over time, could lead to the erection of protectionist barriers and to blinkered nationalistic policies, and offer itself as an alternative to the designing of more effective approaches to financial market regulation. To avert these risks, a bridge must be built between the short-term measures on which there is consensus (clean-up of balance sheets and private/public recapitalization) and longer-term reforms.

This need was largely ignored until the closing months of 2008, although, admittedly, it would have been over-ambitious to take up the problem of more structural regulatory measures before solid short-term programs of public intervention were well in place. Today, however, thanks to the preparatory work of the Financial Stability Forum (see Financial Stability Forum 2008a and 2008b) and the results of the two European groups whose work preceded the G20

meeting (the de Larosière Group and the Turner Review), a revision of some of the cornerstones of regulation and supervision in European and international financial markets is entering the realm of possibility. In this context, it becomes important to harmonize short-term and longer-term initiatives, in order to restore the markets' credibility and savers' confidence. This requires that, on the one hand, the longer-term objectives of regulatory reform not be thwarted by the breaking of long-standing market principles in connection with emergency public interventions, and, on the other, that the introduction of new structural rules not aggravate the markets' failure and interfere with the corrective measures (OECD 2009) The latter aspect is well illustrated by one of the regulatory measures that enjoys widest consensus for the medium term: a ceiling on financial institutions' leverage ratios. If implemented too soon, it would exacerbate deleveraging and drastically diminish the probability of success of the programs now in place for overcoming the financial and 'real' crises.

IV.2 Proposals for regulation and supervision

Our analysis has underscored that the financial crisis clearly could not be considered overcome thanks to the accounting manipulations of the US banks or the start of the project to "clean up" intermediaries' balance sheets. Nonetheless, at the beginning of May 2009, some indicators suggest that the worst phase of financial disorder may be behind us.

In the first place, the continuing need to make impaired securities tradable again and recapitalize banks should not obscure the progress already made. As recently noted by the Financial Stability Forum, since June 2007 the international banking system has caused very large losses to emerge and made corresponding writedowns; but in the same period, despite the malfunctioning of many segments of the financial markets and the severe constraints on liquidity, it has succeeded in more than offsetting these writedowns with recapitalizations (of which more than half financed by the private sector). In addition, the financial markets are responding positively to the policy stimuli and interventions. The policy of low interest rates and credit easing, implemented by the Fed and the Bank of England, and now adopted by the ECB as well, has led to substantial falls in three-month Libor and Euribor (to 0.99% and 1.34% respectively); the prompt support provided to Poland and many other eastern European countries by the IMF (loans amounting to nearly $100 billion) has – at least for now –

prevented the large financial imbalances present in the area from getting out of hand; and the securitization market, which – if it is not degenerated – remains a crucial channel of financing for the economy (Draghi 2009; and below), is showing timid signs of recovery. Lastly, although not bloated by the US accounting artifices, the quarterly accounts of some British and French banking groups were better than analysts had predicted.

It is important that the G20 meeting held in London at the beginning of April 2009 should have anticipated these signals and focused on the problem of a reform of the rules and standards governing intermediaries in international and national financial markets, and on the processes that should oversee and control the application of such rules. This has strengthened guidelines drawn up by the new US Administration and the proposals of the working groups, especially in Europe, regarding the need to construct more efficient forms of regulation and supervision.

One point on which there was agreement concerned the need to strengthen the instruments that the supervisory authorities possess for rapidly appreciating the impact of financial innovations on the functioning of the markets. The explosion of the financial crisis revealed that the various national authorities held approximate and totally insufficient information on the operation of off-balance-sheet vehicles, the risks built into new and complex structured products, the pervasiveness of the conflicts of interest underlying the new ways of determining the ratings of securitized products and the asymmetries deriving from the differences in national enforcement of common international principles. As noted in the first part of this work, these informational deficiencies encouraged intermediaries to engage in regulatory arbitrage that led to the failure of markets and regulation. The reform of the rules and supervision cannot, however, be limited to filling the informational gaps of the past. In order to prevent the authorities from being ready to face financial innovations that are now obsolete but unprepared to face the new ones, it is necessary to insert the more traditional micro-prudential supervision in a macro-regulatory framework (Bernanke 2008b).

The aim of micro-prudential supervision is to prevent the difficulties and possible failure of a bank from harming the interests of savers, who have not taken up risky positions in its regard, and from producing contagious effects capable of undermining the stability of the rest of the financial sector and involving the whole body of investors. The attention paid to these negative externalities

has become of considerable importance owing to the growing interrelationships and integration among financial intermediaries; it is not sufficient, however, to foresee and comprehend systemic risks and place them under control. These aspects are the task of macro-prudential supervision, which, as the present financial crisis shows, has been neglected until now. The aim of macro-prudential supervision is to prevent the failure of the financial system as a whole, by placing the potential destabilizing factors of financial activities and intermediaries under control and checking them. This requires special attention to be paid to common shocks and the possible correlations between risks.

The G20 has entrusted the macro-regulatory task of preventing financial crises to the IMF and the Financial Stability Forum, whose roles have been strengthened through generous (but uncertain) financial commitments or organizational and governance changes, and the drafting of letters of intent among the various authorities for shared handling of international crises. In particular, the Financial Stability Forum, extended to the G20 countries and other developed economies and renamed the Financial Stability Board (FSB), is now empowered to define standards and common rules at international level but not to oversee their application or impose sanctions; by contrast, the IMF, which traditionally could issue binding provisions only if the countries involved had given up their sovereignty, is now authorized to control the application of the rules defined by the FSB and assess the adequacy of individual countries' financial systems with respect to them. It is unlikely that the G20's decisions will enable the FSB and the IMF to perform the difficult tasks they have been entrusted with in an optimal manner and ensure an effective division of labor between the two institutions. Moreover, as will be seen in section IV.3, it is unlikely that the creation of a new European macro-prudential body will improve the situation. It is nonetheless a starting point. Besides, such an ambitious macro-prudential objective as the prevention of financial crises requires, as a necessary albeit not sufficient condition, the establishment of consistent micro-prudential rules.

In this respect the G20 has revealed a high degree of consensus on the need to tackle the following seven problems: enlarging the scope of regulation; establishing size limits for intermediaries; redefining capital requirements; attenuating the pro-cyclical bias of many rules; revising the manner of assessing and controlling risks; redefining the tasks of the rating agencies; and changing managements' earnings incentives. The difficulty lies in the fact that most of these problems are open to a wide range of solutions and are closely interconnected.

Consequently, the solution chosen for one of the problems influences the approach to many of the others and thus tends to deepen the differences between policy-makers.

The financial crisis has shown that many non-bank intermediaries that do not take deposits, grant loans or provide insurance services in the retail market can nonetheless have a systemic impact. In this respect, at least as regards the European Union, the de Larosière Group (2009) and the Turner Review (2009) agree on the desirability of extending prudential supervision to all the intermediaries having a potentially systemic impact. This would appear enough to justify enlargement of the scope of regulation compared with the traditional view that prudential rules are applied only to commercial banks, while for other intermediaries transparency principles are sufficient. However, there is an alternative to this solution. The financial crisis has also shown that the growing systemic impact of various types of intermediary is due to their increasingly close interrelationships and overlaps; enlarging the scope of regulation could therefore be replaced by a return to specialized intermediaries.

This alternative can be summarized in a highly controversial question: is a separation between investment banks and commercial banks desirable? In this respect the Group of Thirty (2009) has provided a response that, although broad-reaching, is positive. In fact it proposes imposing binding constraints on banks' proprietary trading whenever this entails high risks and potential conflicts of interest, and forbidding the banking activities of hedging and private equity whenever a bank's capital is not isolated from its customers' funds; it also proposes introducing constraints on the allocation of banks' ownership to non-financial private investors if intermediaries benefit from State guarantees. The revival of a separation between banking activities nonetheless risks: creating market barriers between activities that have become complementary, thus eliminating all forms of economies of scope; reconstructing protected national deposit and loan markets, thus limiting competition and facilitating the acquisition of niche rents; reducing the collection – no matter how distorted – of information, thus transforming the granting of loans into a merely relational or routine activity; altering the organizational equilibria within banks, thus ending up by downsizing costly services that are nonetheless essential for the efficient working of intermediaries and the protection of savers (e.g. risk management); and mortifying skills within the banking sector, which would inevitably see a falloff in their quality.

The return to the past can be avoided by addressing the problems of the conflicts of interest inherent in the supply of a broad range of financial services and the problems of the particular attitude towards risk and of the specific management of liabilities that characterize investment banking and corporate finance with respect to commercial banks, by means of appropriate forms of regulation and supervision of universal banks. For example, along the lines of Basel 2 and the suggestions of many scholars, the G20 has proposed discouraging banks' provision of services that appear particularly distortionary and of little importance for the creation of economies of scope (typically, proprietary trading) through the setting of especially severe capital requirements. It has also proposed controlling conflicts of interest by means of supervision that is especially careful with respect to transparency and counterparty risks and the related liquidity risks.

If separation between the various banking activities is excluded, a second problem takes on considerable importance: the establishment of size limits for intermediaries. The early phases of the present financial crisis showed that the market and regulatory failures had been due in part to the excessive size and consequent interrelationships of many universal banks and various non-bank intermediaries. The evolution of the crisis has not, however, simplified the organization or reduced the size of the main actors on national financial markets. On the contrary, the US investment banks' loss of autonomy and the bank rescues in the United States and Europe have enhanced the size and organizational complexity of the major intermediaries and increased the degree of concentration of many national financial markets. To stem this trend without imposing a surreptitious separation between banking activities and without having recourse to a distortionary and asymmetric ceiling to the ratio between an intermediary's total assets and the GDP of the country it belongs to, two measures that are not mutually exclusive can be used: the establishment of more severe capital requirements that also take account of the intermediary's size and organizational complexity; and a rigorous application of antitrust criteria that would push the largest banking and non-banking groups to refer to an international market open to competition.

It follows that adequate micro-prudential supervision requires the Basel 2 criteria to be developed and strengthened (Barucci and Messori 2009). The idea of grading intermediaries' capital requirements according to the range of activities performed, the size of the organization and its complexity goes in the direction of improving and refining the connection between the requirements and the riski-

ness of the composition of the balance sheet. It appears desirable for intermediaries' capital requirements also to be linked to the tradability and transparency of the derivatives they hold. For example: the holding of financial assets that are traded in thin unregulated markets and that – consequently – have prices defined on a mark-to-model basis, or the creation of off-balance-sheet vehicles should determine not only supervisory interventions to protect transparency but also drastic increases in the minimum capital ratios required. It therefore does not appear possible to agree with the view whereby the Basel-2 criteria should be abandoned because they were the instrument that allowed European banks to increase their leverage (Di Noia and Micossi 2009). The evidence offered by the crisis needs to be read in the opposite sense. When first introduced, the Basel 2 criteria were considered to be demanding for traditional activities but lax for more sophisticated activities, to the point that many large complex European financial groups were encouraged to engage in regulatory arbitrage: the strengthening of investment banking and the creation of off-balance-sheet vehicles that enormously increased their leverage.

Even if they are improved and refined, the Basel 2 criteria are not enough to eliminate opportunistic management of capital and, in particular, excessive leverage by intermediaries. They need to be supplemented by two rules with which many authorities and scholars already agree (the FSB; Di Noia and Micossi 2009): the return to a narrower definition of the financial instruments that can be included in tier 1 (and possibly tier 2); and the establishment of a maximum gross leverage ratio. The aim of the first rule is to prevent the quality of banking and non-banking intermediaries' capital being reduced by the growing weight of hybrid instruments that, by combining characteristics typical of equity and debt instruments, do not provide solid protection against liquidity or insolvency crises. A narrower definition of the components of tier 1, audited by international bodies and the Basel Committee itself, would also have the advantage of preventing countries belonging to the same economic area or to contiguous economic areas from being able to adopt heterogeneous capital adequacy criteria for their intermediaries and thus introduce a form of distorted competition. The aim of the second rule, instead, is to introduce a simple and direct indicator capable of avoiding the distortions caused by financial innovations and an incorrect assessment of the riskiness of assets held on intermediaries' balance sheets. It should be noted that this limit on leverage does not replace but complements the more analytical requirements of Basel 2. If it were to replace them, in fact, the maximum (unweighted) leverage ratio would encourage intermediaries to select the

assets that were the riskiest but, if successful, the most profitable.

The Basel 2 criteria suffer from two further weaknesses: first, they delegate, without sufficient filters, the assessment of risks either to the managements of banks, in the case of proprietary models, or to rating agencies, in the case of standardized models to be validated; second, they contribute to the pro-cyclical bias of micro-regulation. As various analyses have shown (see Barucci and Messori 2009 for a summary), these weaknesses can be addressed without eliminating or weakening Basel 2. As regards risk assessment, the regulatory authorities need to equip themselves with sufficiently general and sophisticated risk-assessment models to replicate and control the results obtained by individual supervised entities and the rating agencies. As for the pro-cyclical bias, it would be desirable, instead, to find an equilibrium between the fair value criterion and the creation of buffer stocks of capital during the expansionary phases of economic cycles – along the lines that the Bank of Spain has imposed for some time. This equilibrium should rest on a centralized management of the system of variable capital ratios, which would also provide for an automatic tightening of the minimum capital requirements whenever the growth rate in the supply of loans and other financial services exceeded a given threshold (Brunnermeier et al. 2009).

The logic underlying the countercyclical adjustments to capital ratios and other factors serves also to redesign top management's distorted earnings incentives, which led financial intermediaries to maximize short-term profits and, consequently, to take on abnormally large risks (see Rajan 2005). It is in fact a question of subjecting the variable component of the earnings of those with operational responsibility in the financial sector to medium- and long-term indicators and to provide not only for bonuses when results are good but also for penalties when results are bad. That would correct the systematic selection of the riskiest alternatives because it would put an end to the rigged game that bank managers were accustomed to play until the failure of their institutions: "I win or savers lose". However, such countercyclical adjustments do not eliminate the problem of the improper role played by rating agencies and instruments for hedging risk such as credit default swaps.

Rating agencies have played a role as surrogates in the regulation of the financial markets, even though they depend economically on the intermediaries that issue the financial assets they assess; moreover, they have applied a standard

rating procedure to heterogeneous products (communicated ex ante, to boot, to the intermediaries involved, almost as if the agencies were acting as consultants). One can therefore agree with the request, put forward some time ago by the FSB (Financial Stability Forum 2008a), to differentiate the procedures for rating complex and structured financial assets; and the recommendation, in common with the Turner Review, to introduce forms of supervision for rating agencies (including the obligation to register), so as to control their conflicts of interest. It is necessary, however, to avoid turning rating agencies into public institutions, exposed to policy preferences; and consideration must be given to the difficulty of designing an effective system of incentives. A desirable way out of this corner would be to reduce the importance of ratings in the working of financial markets (de Larosière Group 2009). On the other hand, credit default swaps have turned from being instruments for hedging risk into expedients for reducing intermediaries' capital requirements (section II.1). This has given rise to distortions whose seriousness has led to the repeated failure of the credit default swap markets. It would therefore be desirable to provide centralized and adequately capitalized clearing houses for credit default swaps in the various economic areas. In addition, when banks originate securitizations, they should keep a significant share of the related risks on their balance sheets for the entire duration of the various tranches of securitized assets and/or their derivatives.

IV.3 The opportunities and the problems

The possible regulatory innovations discussed in the previous section require very substantial alterations to the organization of the financial markets and aim at creating a more level playing field for the different types of intermediaries and products. Their implementation would mark a sharp break with respect to the relatively recent US decisions in favor of lighter supervision of investment banking (e.g. the Consolidated Supervised Entities Program introduced by the SEC in 2004), which created ample scope for regulatory arbitrage. The European Union has already introduced some rules changes in this regard. In early May 2009 the European Parliament approved amendments to Basel 2, set stricter quantitative limits on the concentration of banks' exposures to any one client or group of clients, increased the minimum share of securitization transactions that originator banks are required to retain, and approved the creation of colleges of supervisors composed of national authorities to facilitate European cooperation in the supervision of banks or other intermediaries with cross-border activities.

Furthermore, the European Commission has undertaken to submit legislative proposals before the end of 2009 to enhance transparency in over-the-counter (OTC) markets and set up a single clearinghouse for credit default swap contracts traded in European markets. Similarly, in the United States, the Treasury Department has put forward proposals to limit the use of OTC markets for derivative instruments; in addition, the large banks that have dominated many of those markets have introduced elements of self-regulation by centralizing clearing between counterparties for standardized products.

Apart from the question of their merits, these initiatives are to be welcomed as signals confirming the resolve of the policymakers of the main economic areas to provide longer-term regulatory responses to the present financial crisis. It is necessary, however, to avoid a risk and to link these changes with an overhaul of the regulatory structure.

The risk concerns the possible frictions between financial innovations and more stringent regulation. The latter must not entail the application of unbending, codified rules to evolving markets or a forced reversion to past organizational formulas for intermediaries; its aim must be to design cogent yet flexible supervisory instruments that can accompany, monitor and, where necessary, correct the evolution of the financial markets. This implies that regulation must neither give financial innovation free rein nor stifle it. A surfeit of new rules could impede financial innovation, which remains an essential factor of economic development. As the present crisis vividly demonstrates, however, not all financial innovations are positive; they can lead to the creation of opaque, complex products and the attendant market failures (Stiglitz 2008). Regulation must, then, strike a difficult balance between two negative extremes. A case in point is the degree of standardization of financial products. Financial innovation often tends to create specific products that are traded in new market segments which are thin and protected and become inefficient if they become entrenched. The protection of transparency and competition therefore makes it necessary to set a minimum level of standardization for financial products; however, an excess of standardization could inhibit all innovation.

Turning to the regulatory structures, let us recall that balanced, effective rules are underpinned by a suitable combination of micro- and macro-regulation (see section IV.2). Such a combination requires, in turn, supervisory structures that can prevent systemic risks and fill the regulatory gaps created by the evolving

activities of the different types of intermediary. It follows that if the long-term regulatory responses to the present financial crisis are to be successful, they must also be based on supervisory structures that satisfy at least three requisites: international coordination among the authorities operating in the main economic areas; close cooperation among the authorities operating in each economic area, based on an efficient division of labor along both vertical lines (between each supranational authority and the corresponding national authority) and horizontal lines (between the different area-wide supranational authorities and between the different national authorities of each country belonging to the area); and separation between supervisory activity and policymaking, so as to minimize the potential conflicts of interest and the risks of regulatory capture.

These three requisites do not posit unrealistic solutions, that is a centralization of supervision at the international level, the creation of a single regulatory authority for the financial markets for each of the main economic areas, or the demise of the national authorities. The objective, rather, is to create, for the financial markets of the United States and the European Union respectively, a regulatory structure based on two pillars: an authority charged with supervision on the stability of all intermediaries irrespective of their type, and an authority responsible for safeguarding the transparency and proper functioning of all market transactions. In each economic area the competences of the two authorities for the financial markets, and those of the antitrust authority, whose mandate for the protection of competition *includes* the financial markets, should therefore be determined on the basis of their respective functions, not that of the intermediaries under their supervision. Moreover, at international level these authorities should cooperate with each other and with the corresponding national authorities, which likewise should be specialized according to function. Obviously, coordination between authorities of different areas imposes lighter commitments than cooperation within each economic area. In this last regard, cooperation between the authorities of a macro-area and the national authorities of the countries belonging to this area should envisage a division of competences based on the importance (cross-border or national) of the activities and transactions supervised and provide for total cooperation in gathering and giving access to information concerning individual intermediaries and the various market segments.

The choice in favor of a two-pillar regulatory structure instead of a single authority within each macro-area is not justified by robust empirical evidence: the regulatory

failures seen in several European countries have brought out the limits of both models. However, the course of the present crisis has also shown that sacrificing transparency for stability creates new room for complex and opaque products, thus fueling systemic risks that trigger market failures and jeopardize stability itself. At the same time, it would be impossible to ensure effective transparency and protection for investors without worrying about the stability of the markets. A two-pillar regulatory arrangement should lead to a better balance between the two purposes, or at least prevent a single authority from deciding arbitrarily and opaquely to subordinate one purpose to the other. The decision not to centralize regulation and supervision at macro-area level alone but to provide for vertical cooperation between the two macro-area authorities and the corresponding national authorities follows from the observation that effective regulation of markets and intermediaries depends on the availability and analysis of heterogeneous flows of information. Proximity gives national authorities informational advantages in respect of regulated domestic entities, while mastery of the broader economic context gives the macro-area authorities an edge as regards market trends. It would be difficult to centralize this heterogeneous information set without impoverishing it significantly.

Even if apparently minimal, the regulatory structure so designed represents a radical departure from the present international configuration and from the arrangements now in place in the United States and Europe. At international level, macro-prudential supervision is not yet entrusted to a single supranational authority or to coordination between authorities of the different macro-areas, since the Financial Stability Board has been mandated to define common rules and the IMF charged with monitoring their application by the individual national authorities, which, however, have not been made subject to binding cooperation. In the United States, micro-regulation has until now been entrusted to a multiplicity of State agencies, whose division of labor reflects a hybrid of function- and institution-based competences, and to various federal authorities. Nevertheless, certain intermediaries (insurance companies or hedge funds, for example) have not been made subject to any federal regulation at all. In addition, the Federal Reserve still has supervisory tasks alongside its responsibility for monetary policy; as critical cases (the Bear Stearns, Fannie Mae and Freddie Mac, and AIG rescues) have made evident, this combining of functions engenders conflicts of interest and compromises the US central bank's independence from political power. In the European Union instead, supervision is still defined by national legislation and carried out by national authorities. Moreover, the individual EU countries

have adopted a great diversity of regulatory structures: a single authority, various authorities with tasks allotted by function, several authorities with tasks allotted according to supervised institutions, hybrid models. In short, the two-pillar model indicated above, with one authority responsible for prudential supervision and the other for transparency, has yet to be adopted, and the division of labor among national authorities remains extremely heterogeneous.

In February and March 2009 the US Treasury Secretary acknowledged the need to define a new set of rules and procedures and drafted a framework for the reform of US financial market regulation that goes in the direction of the proposal outlined above. The draft extends the perimeter of federal regulation to all categories of financial intermediary and lays the basis for a two-pillar, function-based structure of supervision. Secretary Geithner designates the Fed as the federal authority entrusted with the task of managing distressed financial assets and, hence, stability, recognizes the need for a federal authority to oversee transparency in the conduct of all intermediaries, and assigns the FDIC, or another federal agency, the task of reorganizing and, where necessary, taking over intermediaries in serious trouble or on the verge of bankruptcy. As things now stand, however, these are working hypotheses that necessitate further study; their possible implementation lies in the future.

The European Union also has yet to define a new regulatory structure for the area. Today it can count on two Community infrastructures: the three committees set up in 2004 under the Lamfalussy procedure and dedicated, respectively, to the banking sector (CEBS), insurance and private pensions (CEIOPS) and the securities market (CESR); and the colleges of supervisors among national authorities, recently instituted for cross-border intermediaries, which provide for important delegations of power to the home-country supervisor but also envisage decision-making by majority vote. These two infrastructures nevertheless are insufficient to ensure adequate European dialogue with the international organizations responsible for macro-prudential supervision and to construct a uniform regulatory area encompassing all national and cross-border European intermediaries. The three sectoral committees perform an advisory function for the European Commission and lack both effective operational scope and adequate powers with respect to national decisions, while the supervisory colleges' sphere of action is severely restricted by the undiminished autonomy of the national authorities. It comes as no surprise, therefore, that at least two working groups (the de Larosière Group and the Turner Review) have set themselves the

goal of introducing reforms of EU regulatory and supervisory structures that do not require amendment of the EU Treaty.

The two recommendations of the de Larosière Group, with which the Turner Review essentially agrees and which try to respond to outstanding problems, concern the creation of a European Systemic Risk Council and the introduction of more stringent criteria for a uniform application of the European directives on financial matters in the member countries. The European Systemic Risk Council would be headed by the president of the European Central Bank but should also involve the participation of the non-euro-area members of the European Union and the European Commission. Its main tasks would be to gather and analyze information relevant to the macro-equilibria of the European Union and issue advance warnings of the consequent systemic risks. This activity would be coordinated with that of the international macro-prudential bodies (the FSB and IMF); and the detection of systemic risks would lead to action plans that the European regulatory authorities would be required to adopt. However, it is still unclear how to reach an effective coordination. As to more uniform application of the European directives across member States, this is a necessary condition to avoid regulatory arbitrage within the European Union and to make the unification of Europe's financial markets effective. Harmonization of the system of rules, supervisory powers and sanction regimes cannot be founded on a common corpus of normative principles that is actually translated into very different national rules.

Regarding European micro-regulation, the de Larosière Group rightly discards the idea of transferring the supervisory functions for cross-border intermediaries to the European Central Bank. Such a solution would meet with at least three objections: it would exclude intermediaries of the member States that do not belong to the euro area; it would leave out insurance companies, which on the basis of the European Treaty do not come under the jurisdiction of the ECB; and it would ultimately compromise the independence of monetary policy, which, especially in case of crisis, would be squeezed out by agreements between supervisory authorities and governments to rescue intermediaries in difficulty. However, the design proposed by the de Larosière Group is cumbersome. It is based on the recent institution of supervisory colleges formed by national authorities and envisages the transformation of the CESB, CEIOPS and CESR into authorities responsible for their original sectors. These three bodies would constitute the European System of Financial Supervision (ESFS), would have

competences in terms of secondary legislation (definition of binding supervisory standards, binding technical decisions applicable to individual intermediaries, licensing and supervision of rating agencies) and would oversee and coordinate the activity of the colleges of supervisors. They would also have to coordinate their activity with the European Systemic Risk Council.

However the three bodies of the ESFS would not be transformed into independent regulatory authorities at European level. At the most, thanks to their role in the colleges of supervisors, they could serve to coordinate national authorities in the case of activities of trans-European importance. The resulting regulatory setup would be cumbersome and ill-suited to deal with the crucial unsolved problem: the centralization, at macro-area level, of supervision on cross-border intermediaries (Vernon 2008). What is more, according to the de Larosière Group it would be necessary to wait until 2013 before reducing the three bodies of the ESF to two (with the suppression of the CEIOPS) so as to take some steps toward function-based regulation.

These observations point back to my previous proposal: the creation of a two-pillar regulatory structure for the European Union that interacts and coordinates with the corresponding authorities of the member States and with the international macro-prudential organizations. Together with a strengthening of the standards of national implementation of the Community directives, this regulatory setup would make it less likely that a financial crisis like the present one "can happen again" in the coming years. But such a result depends on the ability of regulation and supervision to prevent systemic risks, for the market is indeed unable to manage and reabsorb risks of that type once they have penetrated the economic and financial fabric. This involves the government or the State in their function as insurers of last resort. Accordingly, before concluding this essay, it will be appropriate to address the following questions: Has the financial crisis left a clear and present danger of systemic risks in its wake? If such risks do exist, can they be detected and contained by macro-prudential supervision? What does the State's function as insurer of last resort actually entail?

CONCLUSION

Conclusion

We have traced the different phases of the present financial crisis, from May 2007 to early May 2009, and assessed the various policy initiatives taken to contain and overcome it. A checkered picture emerges. In the early months the response to the crisis was largely based on highly expansionary liquidity policy and, after some hesitation and delay on the part of the ECB, accommodating monetary policy. These short-term policies, designed to cure the symptoms but not the illness, were then combined with a contradictory flurry of public interventions aimed at repairing financial intermediaries' balance sheets. The first interventions were ad hoc, discretionary bailouts. Systematic plans were first launched by Europe, which opened the way to the public recapitalization of hard-pressed intermediaries and public guarantees of bank assets. But this policy did not work in the most difficult cases: the recapitalizations were largely wiped out by the parallel writing down of the most deeply impaired securities on banks' books. In the opening months of 2009 the United States was therefore won over to the need for public measures to restore a market in these securities; and in the second half of March they introduced a set of programs, many still in an embryonic stage, that nevertheless improved the expectations of market participants.

Two years since the start of the worst crisis in seventy-five years, various indicators suggest that the low point of the international financial cycle has been passed. This does not mean that all intermediaries have overcome their balance sheet problems or that the international economy is already recovering. It is likely that the crisis of the real economy, triggered by financial disorders with the usual lag, will intensify until the start of 2010; and it is necessary that the public measures designed in the United States and Europe succeed in cleaning up banks' balance sheets and making them more liquid and transparent. Consequently, three grave threats continue to loom over the world economy: a whiplash effect of the recession on the financial crisis, which would create a

vicious circle and lead to a long depression; an emergency at a major international intermediary, which would inject contagion effects into a situation that remains fragile; and the failure of the Geithner Plan and of the German bad-bank project, which would stoke deleveraging and heighten the problems of capitalization and raising liquidity for the banking sector.

The first threat can be attenuated by increasing public investment and supporting private consumption. Public investment could improve material and immaterial infrastructure of the economic systems, thus augmenting current aggregate demand and preparing future increases in total factor productivity. However the necessary recovery in aggregate demand cannot be based on public spending alone. To prevent the growing public debt of all the economically advanced countries and the excesses of liquidity present in the system from igniting an inflationary spiral after the crisis, it is necessary that the private components of aggregate demand gradually replace the public ones and allow an orderly, managed reabsorption of the stocks of liquidity. Private investment normally follows a revival in consumption. Hence, it becomes necessary to support private consumption.in general, but particularly in the dynamic developing countries that have large trade surpluses (China, India, Brazil) and in the European countries overly reliant on exports (Germany, Italy). This requires a redistribution of income and wealth in favor of the poorest strata of the population or those that have suffered the most drastic compression of their relative purchasing power. The financial crisis that broke out in the late spring of 2007 was caused by specific factors whose links with the pre-existing international macroeconomic imbalances are only indirect and whose connections with the polarization of income and wealth are still more complex and indirect. Nevertheless, now a recovery in aggregate private demand is essential to overcome the economic and financial crisis.

The other two threats bring us back instead to issues examined in Chapter IV of this essay. To ward off these threats it is necessary to combine effective short-term measures with the redesigning of the perimeter and structure of regulation so as to eliminate the effects of the systemic risks that are present in the financial markets and prevent those risks from spreading anew.

The questions with which we concluded section IV.3 raise a crucial problem. One of the most disturbing legacies of the crisis is, precisely, that it revealed that the organization of our economic and financial systems contains hotbeds

of systemic risk that, as such, are non-diversifiable and lead to market failures. The combination of macro-prudential regulation and new, more rigorous forms of micro-regulation is intended to reduce the likelihood of these hotbeds being transformed into a conflagration. But, just as the use of ever more sophisticated fire-prevention systems in our houses and cities does not eliminate the function of firefighters, it would be short-sighted to neglect to construct defenses against the possibility that some of the potential systemic risks might flare up and jump the firebreaks created by the new regulatory structure. I have already clarified that these defenses do not require a return to the past, much less a restoration of the State as entrepreneur or banker. Direct public management or even long-term public interference in the allocation of financial wealth would turn intermediaries into dispensers of public services in the most traditional sense of the term; this would create a structural commingling of politics and economics and give rise to systemic distortions serious enough to hinder growth (Barucci and Messori 2009). Yet, the threat of systemic risks makes it impossible to reserve to the State the sole - albeit crucial - function of regulator.

At first sight, the way out of this apparent dead end is simple. The inadequacy of the State as regulator is seen in the failure of regulation and the associated propagation of systemic risks. It is a question, then, of devising some form of insurance against that adverse possible outcome. By definition, the markets can insure diversifiable risks but not systemic risks. The only agent that can provide insurance against systemic risk is the State or a group of States represented by a public international body. After the crisis, therefore, the State should function both as regulator and insurer of last resort.

Things, however, are not so simple. The public function of last-resort insurance has significant contraindications. The most obvious one is the perverse incentive that it creates for private-sector market agents: the socialization of losses does not limit the privatization of gains and so is a spur to high-risk behavior and herding. The scheme, that is, increases the probability of regulatory failure and the occurrence of systemic risks. There are only three ways to limit this adverse incentive effect: to offer public insurance for a fee, so that the terms of the insurance contract correct the moral hazard; to penalize the market agents that resort ex post to public insurance of last resort, by imposing non-pecuniary costs (for example, loss of professional position) as well as pecuniary costs; and to define ex ante, with the maximum precision compatible with the presence of imperfect information and

hence with incomplete contracts (Hart 1995), the rules and conduct that guarantee ex post a public insurance intervention.

It is difficult to describe the public function of last-resort insurance in abstract terms because it potentially applies to a very wide and heterogeneous range of cases. Let me therefore conclude this essay with what is perhaps a provocative example taken from a financial market segment central to the present crisis: the securitization market.

Empirical evidence shows that the financial markets of continental Europe are still dominated by bank intermediation. A result of this intermediation is that loan assets largely exceed traditional funding liabilities (deposits) and create a structural shortage of liquid funds in banks' balance sheets (see section III.3 for the Italian case). It has been stressed that the financial crisis and the suspension of activity in the interbank markets heightened this shortage of liquidity, thereby aggravating disorderly deleveraging. Even if the expansionary liquidity policy of ECB has been finally successful in temporarily canceling the problem, the latter remains a structural feature of the banking sector. Even before the crisis banking groups met their need for additional liquidity with respect to deposits by issuing and/or placing what were often structured, opaque and illiquid financial products. This shows that, especially in continental Europe, the raising of liquid funds by banks is an important potential source of systemic risk. To contain the danger, there are three alternatives: to encourage investors to allocate increasing portions of their financial wealth to traditional short-term products, so as to increase banks' liabilities and ease their liquidity constraints, lending remaining unchanged; to shrink banks' assets by diminishing the volume of their lending and weakening their function of intermediation in the financial markets; or to shrink banks' assets, with lending unchanged, by means of securitization. The first two alternatives introduce factors of inefficiency in the allocation of European financial wealth or require a leap in financial organization not likely to be compatible with the history of continental Europe ("path dependence").

The third alternative may thus appear to be the way out of the dilemma: it attenuates the European banking sector's structural shortage of liquid funds without calling the crucial function of intermediation into question. But the current financial crisis has also shown that securitization leads to a deterioration of the originate-to-distribute model and introduces systemic risks into the financial markets. And so the choice becomes problematic: either forgo securitizations,

to avoid trying to extinguish one hotbed of systemic risk by possibly setting fire to another; or relaunch the securitization segment, taking steps to prevent its deterioration through more effective forms of regulation and, in the case of failure, the intervention of last-resort public insurance. The latter would have to cover just the ABSs issued by pure special purpose vehicles, not those linked to chains of structured products created by SIVs and conduits (see section I.1). Thanks to the more effective regulation and public insurance, these plain ABSs could become attractive for a large set of institutional investors.

Following Draghi (2009), I believe securitization performs a crucial function for the organization of the European financial markets. I therefore think it is worth verifying whether, in this case, State provision of last-resort insurance might not tilt the scales in favor of a solution that does not throw out the baby with the bathwater.

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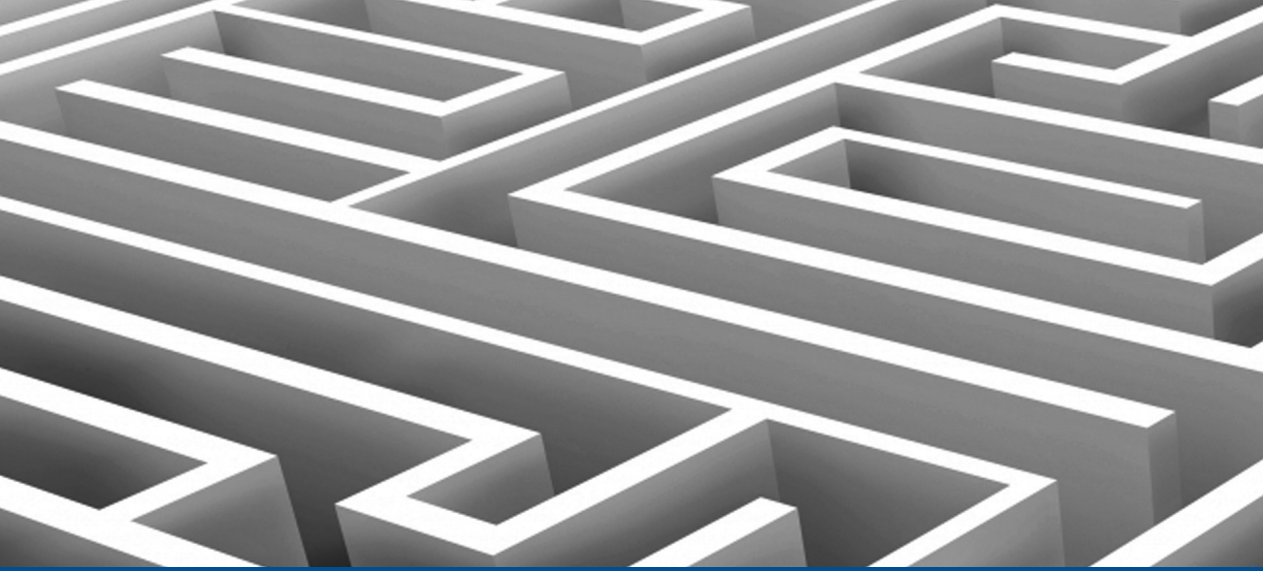

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