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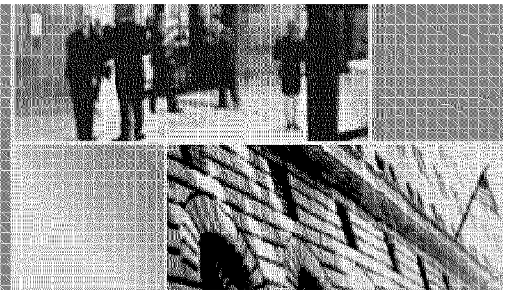
Observations on the Role of Supervision in the Current Financial Crisis



Federal Reserve Bank of New York
July 2008

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I. Introduction

This note provides a preliminary look at the role of supervision in contributing to the severity of the financial crisis of 2007 and 2008. It does so from the perspective of the Federal Reserve Bank of New York's role as umbrella supervisor of some of the major U.S. bank holding companies. It concentrates on the safety and soundness or prudential aspects of supervision rather than those directed at consumer protection and other compliance related control issues.

The observations in this note are made with the benefit of hindsight. The fact that they are evident now does not mean they were identifiable ex ante or avoidable. But a close and careful evaluation of the strengths and weaknesses of our basic supervisory performance and approach is critical to improving the supervisory process in the future.

In reviewing the performance of the financial system in this crisis, there are many areas for concern. Perhaps most important from the perspective of systemic stability was the failure of risk management in some of the largest institutions. Firms made business decisions that exposed them to increased risk, and risk management failed to constrain the business judgments or keep pace with the challenges arising from the complexity of the exposures created. The scale of losses of many large financial institutions was very substantial relative to capital and earnings, as were the magnitude of claims on liquidity. The scale of potential losses created credible concerns about solvency and default risk at some major institutions, adding to the overall fragility of the system. The scale of potential claims on liquidity provoked actions by individual firms that caused substantial impairment to funding markets. To a significant degree, these risk management weaknesses contributed strongly to the severity of the crisis and its potential impact on the real economy.

In our role as umbrella supervisor of banking organizations, we are subject to similar ex-post criticisms, as we failed to recognize the dimension of the risks faced by these institutions in extreme market conditions, to identify a number of their risk management shortcomings and to induce appropriate changes in behavior. This is not to say that our supervisory efforts failed, either in absolute terms or in comparison to those of other agencies, but only through careful consideration of what worked and what did not are we likely to identify areas where meaningful improvements can be made. In fact, we can point to a number of elements of supervision that have been very positive, such as:

- Supervision was effective in improving risk management practice in some important areas, such as counterparty credit risk management in derivatives and with respect to hedge funds, and the operational infrastructure in OTC derivatives markets.

- Underwriting standards appear to have been significantly stronger in banks and their affiliates than in thrifts and non banks.

- The scale of losses relative to capital and potentially problematic exposures relative to capital, so far, are much greater for institutions where we the Fed is not the primary consolidated supervisor, including some major non-U.S. banks, investment banks, the GSEs, and the monolines.

- And in the institutions where we are the umbrella supervisor that experienced the largest losses relative to capital, the major losses have been in the bank and broker dealer affiliates that are the primary responsibility of the functional supervisors, rather than in the other affiliates of the holding companies.

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II. Current Objectives and Approach to Supervision

As we consider what supervision missed and why we missed it, it is worth starting with a quick review of the broad objectives that guided the supervisory process as the financial boom expanded, and the principal focus of supervisory efforts during that period.

Our approach was to focus on the overall financial condition of the individual firm and the quality of the risk management and control systems of individual firms. Our focus was on improving the capacity of institutions and therefore the overall system to handle stress. Supervision was not directed at trying to preemptively dampen the dimensions of the overall credit boom or to constrain growth in particular credit exposures where stress losses seemed likely to be manageable relative to capital. Leaving aside the question of whether supervision could or should intervene on a discretionary basis in an attempt to dampen the amplitude of credit cycles, such as regime does not accurately characterize the current approach to supervision here or elsewhere.

FRBNY Supervisory Initiatives in Recent Years:

Apart from our normal supervisory work, we undertook a number of initiatives over the past several years aimed at the above stated objective of improving the capacity of the financial system to absorb shocks. Below is a description of such initiatives.

- We brought the SEC and OCC into select horizontal review of specific dimensions of risk management practice, and engaged the primary supervisors of major foreign banks actively in several of them.

These included:

  - Counterparty credit risk management vis-à-vis hedge funds and in derivatives.
  - Stress testing and scenario analysis.
  - Liquidity risk management.
  - Valuation practices in complex products.
  - Collateral management.

- We led the multilateral effort to improve post trade processing in OTC derivatives.
- We conducted a range of analysis of the potential exposure of the banking system to absorb losses, focusing on mortgage related losses as well as on broader credit exposures.
- We commissioned the Corrigan-led CPCRMGII and encouraged firms to conduct and report self assessments with respect to those extensive recommendations on risk management practices.
- We established the System-wide LFI process--expanding upon a framework we had built in New York – that focuses on upgrading and making more consistent the oversight of major firms across the System, through structured vetting processes and developing risk expertise across a variety of areas and deploying

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- It across the set of major firms in a risk focused way to address emerging issues. And we put more resources into an internal FRBNY financial risk committee process and reporting process, bringing together Markets, Supervision, International, Payments, and Research on a regular basis.

III. What did our Supervisory efforts fail to capture?

This allocation of priorities looks to have been the right one ex ante, but the severity of the current crisis also confirms that these efforts did not suffice to identify or address a number of critical features of the environment over the past few years. Here is a partial but consequential list of those features.

- The concentration and magnitude of exposure in U.S. banking organizations to deterioration in U.S. home prices through:
  - highly rated CDO tranches held on balance sheet
  - Contingent liabilities issued to money market SPVs in particular.

- The extent of deterioration in underwriting standards in mortgages outside the banking system, and the consequences for confidence in mortgage related ABS markets, as delinquencies rose.

- The scale of long term, relatively risky assets financed in conduits, off balance sheet, with explicit and contractual, as well as implicit, commitments of support from banks.

- The substantial reliance by both banks and nonbanks on short-term secured funding through the tri-party repo market in particular. And the extent to which the range of assets financed by highly risk averse investors through tri-party had expanded to classes beyond Treasuries and agencies, and the potential this created for instability in funding markets once counterparty risk increased.

- The extent of banks' exposure to a sharp and sustained erosion in market liquidity and the ability to sell, syndicate, securitize credit assets.

- The degree of reliance on ratings, and the vulnerability of those ratings to the decline in underwriting standards and in house prices, for structured credit products, particularly mortgage related ABS and CDOs of ABS—by both investors and supervisors. Too little attention was paid to the size of gross notional exposures to highly rated securities.

- Margins and haircuts non traditional OMO collateral were thin relative to risk, at least ex post. Initial margin on derivatives and structured credit products were set at levels that did not provide much protection against the adverse tail.

- The extent of basis risk in hedges, and the potential risk to the value of protection purchased from vulnerable counterparties (like the financial guarantors).

- The currency mismatch in liabilities and assets of non U.S. banks.

- The impact of the "SEC accord" on practice in reserving, which left many banks running with reserves closer to prevailing losses, rather than estimates of more historically normal losses in a downturn.

- The thinness of the financial cushions in central counterparties against the risk of default by a major institution and its related affiliates.

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In a sense, the important consequence of these misses was not their impact on individual institutions, although that impact was significant for some. What probably mattered more was the aggregate impact on overall perceptions of risk and on conditions in funding markets. As individual firms moved to de-lever, preserve balance sheet capacity to meet contingent commitments, build more conservative funding profiles, raise margin to cover rising risks, market prices fell, volatility rose, liquidity eroded, normal arbitrage relationships broke down, etc. That aggregate dynamic is the defining feature of the severe and protracted crisis we are currently experiencing.

IV. Why did supervision fail to capture these features of the environment?

The Senior Supervisors report provides a very critical and comprehensive assessment of weaknesses in risk management practice that contributed to these problems. Some of these weaknesses had been the focus of supervisory attention, such as valuation practices or the ability to aggregate firm wide exposures to different risk factors. Others were the result of management weaknesses that were hard to observe during the expansion, such as the quality of judgment in the central risk management and control functions or the quality of oversight exercised by senior management in the business lines. Probably most importantly, the extent of firm exposure to tail risk was not well captured by their risk management and stress testing regimes, and did not lead firms' risk appetites to be constrained appropriately. The following is a list of some more specific contributing factors:

- Our extensive work on stress testing and scenario analysis was too narrowly focused on an institution's capacity to adjust to an adverse idiosyncratic shock, and was not sufficiently focused on an institutions' vulnerability to systematic shock.

- Risk management regimes in general did not capture the scale of exposure to tail risk, and although our supervisors' reviews surfaced concern, we did not attempt to achieve a substantial change in that exposure.

- Contingency liquidity plans were generally calibrated to deal with a firm specific loss of access to unsecured funding, rather than a general erosion in secured funding markets or the ability to sell assets.

- Although we focused attention on failures in the capacity of internal risk management systems to capture firm wide exposures to particular risk factors and concentrations, we did not identify the exposures that proved most damaging, such as the senior CDO tranches retained by the largest firms in that business.

- We did not force firms to run a sufficiently conservative set of stress scenarios, such a significant recession combined with a large asset price shock.

- We did not protect ourselves against failures by the functional supervisors to capture the scale of risks housed in their regulated banks and broker dealers. We deferred to and relied on their work to too great an extent.

- Because of legitimate and understandable attention to control weaknesses revealed in the last downturn and after Enron and 9/11, exam work was still focused disproportionately, given the relative scale of the risks, on consumer compliance, AML/BSA, and related internal controls problems, and this came at the expense of attention to financial strength relative to risk.

- We did not identify the weaknesses in risk management controls and governance structure – in culture, in

quality of senior management knowledge and judgment -- that proved most damaging. These weaknesses were not evident in formal structures such as governance and reporting lines, and were harder to see while economic growth was strong and markets were highly liquid.

As a consequence of these factors, supervisors and firms alike took too much comfort from what appeared to be relatively high levels of capital relative to risk.

V. What are the implications for how we conduct supervision in the future?

Apart from the changes under consideration to regulatory policy (e.g. capital, liquidity) and longer term changes to regulatory structure, we are going to need to change how we conduct supervision in the major institutions. Here is a preliminary list.

- Focus systematically on financial vulnerabilities of major firms as a main driver of our umbrella supervisory regime.

- Design and carry out a more aggressive program of horizontal reviews of risk management practices, with more structured follow-up at more senior levels in the institutions.

- Make the overall conclusions of select reports public, along the lines of the SSG report, to raise the level of attention.

- Conduct more regular and systematic forward looking assessments of capital and liquidity, under a range of different adverse scenarios.

- Institutionalize the cooperative process now underway with the SEC, OCC, and primary foreign supervisors in the design of and follow-up on horizontals.

- Ensure we have adequate information on the global exposures, global risk management challenges, and global capital and funding positions of the foreign LFIs.

- Engage in more frequent reviews of valuation practices for selected types of assets, across banks and investment banks, as a way of exposing negative outliers.

- Bring a more selective, risk focused approach to the allocation of exam work, with more emphasis on the financial or prudential dimensions of risk management, less on the compliance related functions, more emphasis on the largest and most risky institutions and exposures.

- Focus more attention on the quality of internal checks and balances, such as incentives in compensations schemes, allocation of capital, pricing of internal liquidity and independence of valuation functions.

- Provide more guidance on expectations for internal MIS and public disclosure.

- Explore ways to leverage audit regimes in firms to capture valuation and risk management weaknesses.

- Design a framework for cooperation with other U.S. supervisors that leaves us less vulnerable to what functional supervisors might miss, without replicating all their work, or violating the spirit of Gramm-Leach-Bliley Act.

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- Raise the level of engagement with the Board of Directors of the institutions, as well as with the heads of individual business lines.

- Design and conduct a more systematic program of table top scenarios with domestic and foreign supervisors to deal with potential failures of major institutions.

VI. What changes should we consider to our internal processes?

We are in the process of carefully looking at our internal supervisory resources, how they are deployed, and how they interact with other parts of the bank. A few preliminary observations:

- In recruiting, target individuals with strong quantitative backgrounds or with industry experience in critical areas.

- Tailor our examiner training process to more effectively target the mix of skills and tools appropriate for examining large complex financial institutions. Increase the relative emphasis on financial analysis, accounting and risk management, and provide more rigorous exposure to quantitative methods such as Value-at-Risk and simulation methods. Eliminate the FRS examiner commissioning requirement for LFIs.

- Leverage our comparative advantage as supervisors by conducting more horizontals--possibly targeted at narrow products, markets or practices—and engaging in more systematic analysis and interpretation of the results. Horizontals provide a unique cross-firm perspective that can mitigate at least some of the challenges associated with supervising complex institutions in an environment of rapid financial innovation. Increase the degree to which we engage around the results of horizontals internally, increasing their usefulness as a tool to identify latent risks at both the individual firm and system-wide level.

- Strengthen our capacity to engage in quantitative comparative analysis using institutions' internal data.

- Continue to push for more interaction and engagement across the functional divisions of the Federal Reserve Bank of New York, so that we can better integrate the market monitoring, supervision, payments, research and other expertise of the bank. More systematically integrate the work that goes into our monetary policy assessments of risks to the forecast into our supervisory work.

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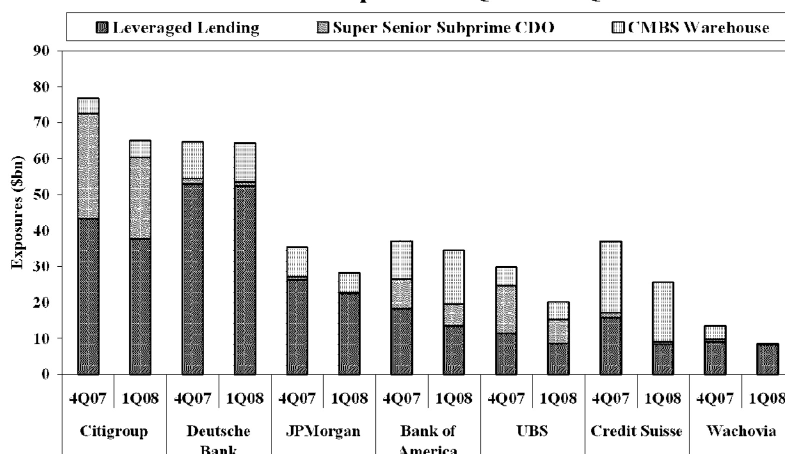
High Risk Exposures

Super Senior Subprime CDO of ABS, LL and CMBS Warehouse Exposures: 4Q07 and 1Q08



Source: Company Reports

1Q08 High RiskExposures				
($mn)	Leveraged Lending	Super Senior Subprime CDO	CMBS Warehouse	CRE - Banking Book
Bank of America	13,443	5,935	15,100	62,100
Citigroup	37,700	22,700	4,700	22,500
JPMorgan	22,500	300	5,300	24,400
Wachovia	8,157	439	na	37,100
Credit Suisse	8,400	700	16,500	na
Deutsche Bank	52,400	1,100	10,900	na
UBS	8,600	6,600	4,900	na

ABCP, Muni, and ARS Exposures												
($mn)	BAC	Citi	JPMC	WB	WFC	CS	UBS	DB	BNPP	SG	BARC	HNAH
ABCP Exposure (all non-Siv ABCP)	**58,470**	**72,558**	**49,452**	**13,360**	**0**	**10,200**	**na**	**17,781**	**16,753**	**30,705**	**28,600**	**6,000**
Multiseller	*42,683*	*58,772*	*48,957*	*13,360*	*0*	*10,200*	*na*	*13,869*	*17,212*	*30,705*	*25,000*	*6,000*
Singleseller	*15,787*	*13,786*	*495*	*0*	*0*	*0*	*na*	*3,912*	*0*	*0*	*3,600*	*0*
Muni's/Other Exposure	**na**	**22,570**	**86,822**	**21,500**	**3,844**	**na**	**na**	**5,216**	**0**	**2,700**	**0**	**na**
ARS Exposure	**58,010**	**6,500**	**20,705**	**15,800**	**2,700**	**na**	**na**	**na**	**0**	**0**	**0**	**236**
Muni	*43,010*	*na*	*16,545*	*15,800*	*0*	*na*	*na*	*na*	*0*	*0*	*0*	*15*
Student Loan	*15,000*	*na*	*4,160*	*0*	*0*	*na*	*na*	*na*	*0*	*0*	*0*	*59*
CMBS Exposure	**15,100**	**4,700**	**5,300**	**na**	**na**	**16,500**	**4,900**	**10,900**	**na**	**na**	**na**	**na**

Source: Internal reports

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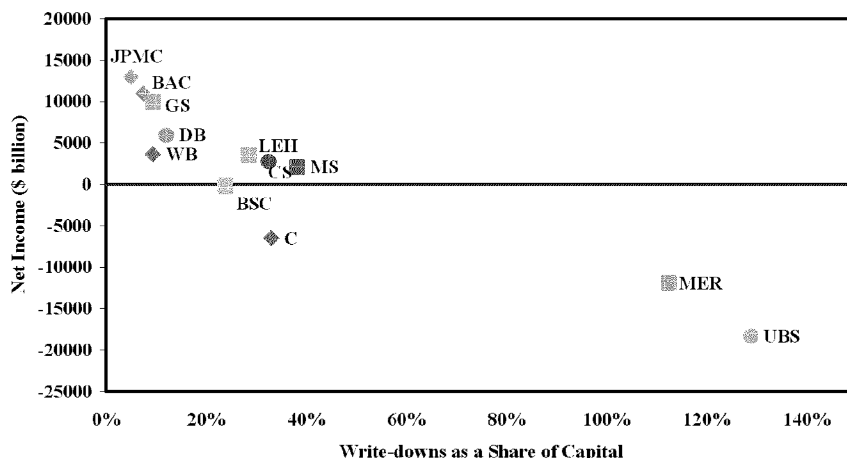
Write-Downs Summary Table

Comparison of Net Income vs. Total Write-downs as a Share of Capital at Selected Institutions*



*Net Income refers to total income reported during the four quarters between 2Q07-1Q08
*Tier 1 capital utilized for BHC and FBO ratios, and total equity utilized for securities firm ratios.
*Total write-downs include write-downs reported between 3Q07-1Q08
Source: Company reports.

Summary Table: Write-Downs/Losses 1Q08												
in US$MM	C	JPMC	BAC	WB	UBS	CS	DB	MER	MS	LEH	BSC	GS
Total Subprime and Related CDOs	5,991	266	1,572	339			700					
Mortgage Backed Securities	17		252	521	400	979	400	3,600				
Commercial Real Estate	600											
Residential Real Estate	1,015	1,404		251								
Leveraged Loans	3,078	1,100	439	309		1,714	2,800	900	1,050	500		1,000
Other	2,952	0	0	144	18,600	2,721		3,000				
Total 1Q08 Write-downs	13,653	2,770	2,263	1,564	19,000	5,414	3,900	8,982	1,450	1,600		2,000
Total Write-downs since 3Q07	**32,681**	**4,471**	**6,990**	**4,238**	**37,300**	**9,600**	**5,300**	**35,390**	**11,150**	**5,900**	**2,600**	**3,480**
Tier 1 Capital/Tangible Common Equit	99,088	89,612	93,910	45,353	28,962	29,595	44,028	31,478	29,219	20,720	10,961	37,409
Write-downs % of Capital (TCE)	33%	5%	7%	9%	129%	32%	12%	112%	38%	28%	24%	9%

Source: Company reports, Creditflux

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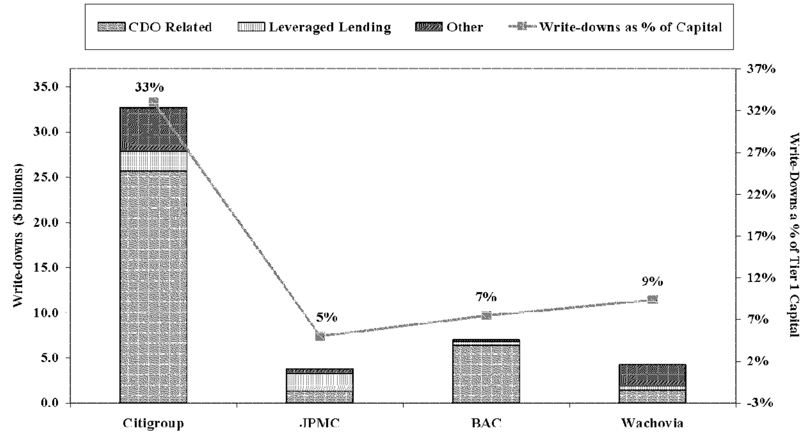
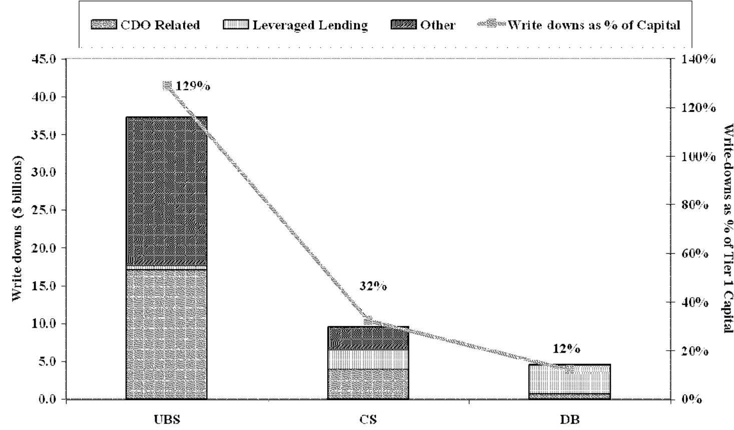
Total Write-Downs

BHC Write-downs, 3Q07-1Q08



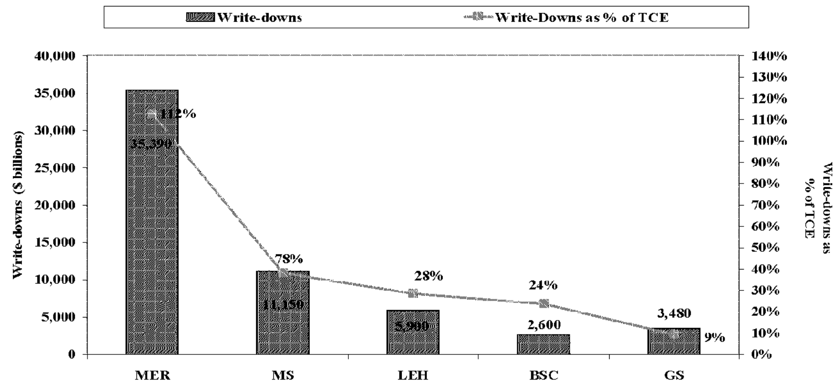
Source: Company reports, Creditflux

FBO Write-downs, 3Q07-1Q08



**UBS Tier 1 Capital value as of 4Q07.*
Source: Company reports and analyst reports

Securities Firms Write-downs, 3Q07-1Q08



**Merrill Lynch TCE as of 4Q07*
Source: Company reports