

Regulating the Investment Banks and GSEs After the Subprime Crisis

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1. Introduction

This paper offers a framework and a specific proposal for the re-regulation of the US investment banks and the government sponsored enterprises (GSEs, that is, Fannie Mae and Freddie Mac) in the aftermath of the subprime mortgage crisis. The largest investment banks are now all operating within bank holding company structures, but the regulatory issues remain; indeed, the bank holding company structure makes it more important than ever to deal with the regulatory issues of the investment banks.¹ It may seem optimistic to refer to the subprime crisis in the past tense, but I believe this will soon be true, and that Congress and the new Administration will give their highest priority to the re-regulation of the US financial system. US financial history is replete with examples of a dialectic in which financial sector innovations create financial crises and financial crises create new regulatory structures. In both directions, we find an admirable record of success.

First, financial system regulation has invariably responded to crises created by new financial market innovations, and almost always with long-lasting benefits. The following are examples of the impressive track record of regulatory responses to past financial crises:

- The National Bank Act of 1863 created federal chartering and regulation of commercial banks to control “wildcat banking.” This legislation also created the Treasury Department and the Office of the Comptroller of the Currency.

¹ I also include AIG in the discussion, treating it as an investment bank, albeit one with a very large insurance subsidiary. On the other hand, the paper does not cover the regulation or re-regulation of commercial banks. The commercial banks are currently receiving very large capital infusions from the US Treasury, and it is premature to judge the implications, if any, for the redesign of commercial bank regulation.

- The Federal Reserve System was created in 1913 in response to a continuing sequence of financial panics.
- Federal deposit insurance was created in 1933 to stem the bank runs of the Great Depression.
- The Glass-Steagall Act was passed in 1933 to control the conflicts of interest between commercial banks and investment banks that became apparent during the 1930s. Glass-Steagall was later relaxed by the Bank Holding Company Act of 1956 and the Financial Services Modernization Act of 1999.
- The Federal Housing Administration (FHA) was created in 1934, establishing the government's first insurance program for residential mortgages. Fannie Mae was created soon after, in 1937, to provide further support to the mortgage markets of the 1930s. In 1968, Fannie Mae was separated into 2 components: GNMA which continued as a government agency operating within HUD and a new government sponsored enterprise which retained the name Fannie Mae.
- The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), passed in response to the S&L crisis, required, among many other important provisions, that bank regulators take "prompt corrective action" with regard to any banking firm that was failing to meet capital or other regulatory requirements.

In the other direction, capital market firms and entities have been successful in creating a long string of financial innovations, working either within or around the existing system of financial regulation.² The current subprime crisis provides cases in point. As one example, the design and implementation of subprime mortgages was carried out notwithstanding a substantial array of existing mortgage market and consumer protection legislation. As a second example, the major investment banks assembled highly risky, leveraged, and maturity mismatched portfolios notwithstanding their regulation by the SEC at a level that was the equivalent of the highest standard applied by the Federal Reserve in regulating bank holding companies.³

The bottom line is that the sequence, financial innovation → crisis → regulatory response, has been a continuing theme of US financial history, with an admirable record of success in

² Allen and Gale (1994) provide a systematic treatment of the process of financial innovation. White (2000) specifically discusses the connection between financial regulation and innovation. Silber (1975) provides a more institutional approach, including a chapter on mortgage market innovations by Jaffee (1975).

³ See the testimony of SEC chairman Christopher Cox (2008).

encouraging innovation while maintaining a generally safe and sound financial system.⁴ Two particular features of the regulatory responses to the major crises should be noted:

- 1) The regulations have been highly focused in responding to the key issues of the time.
- 2) The regulations have generally been strong, innovative, long-standing, and beneficial.

In this spirit, the current paper develops a framework and offers a proposal for the re-regulation of key components of the US financial system in the aftermath of the subprime mortgage crisis. I begin in Part 2 with a review of those aspects of the subprime crisis that require a regulatory response. My conclusion is that the unique aspect of the current crisis is that losses on a relatively small asset class—subprime mortgages—became sufficient magnified to force the Federal Reserve and the Treasury to bailout out the largest US financial firms, bailouts that are unprecedented in US financial historical.⁵ The bailouts occurred because the Federal Reserve and Treasury feared that the bankruptcy of individual banks, insurers, and government sponsored enterprises would create a meltdown of the entire financial system. An appropriate legislative response should thus focus on re-regulating the US financial system in order to make future systemic failures and bailouts of this magnitude highly unlikely.

Part 3 of the paper then provides a specific proposal for the regulatory response. The starting point is to distinguish two financial firm activities: (1) risky investment activities that can threaten firm bankruptcy—what I call the hedge fund division, and (2) market making and related activities, the failure of which would have systemic implications—what I call the infrastructure division. The core idea is to ensure that the infrastructure division is bankruptcy

⁴ For a contrary view, see Wallison (2008a).

⁵ I use the term “bailout” to refer to the full range of loan and investment activities undertaken by the Federal Reserve and Treasury Agency in responding to the subprime crisis. “Bailout” seems the proper term since private sector financial firms were unwilling to take comparable actions in support of their failing brethren, presumably because the risk/return ratios were not favorable.

remote—can operate on a stand alone basis if necessary—even when losses from the hedge fund division threaten the holding company’s solvency. Historical parallels can be found in the long-standing monoline regulations of catastrophe insurance firms and in the Glass-Steagall legislation including the 1956 and 1999 modifications. Part 4 provides concluding comments.

2. Sources of the Subprime Crisis and the Regulatory Bailouts

What caused the subprime crisis, and what caused the regulatory bailouts? Answers to these questions are an essential starting point for the systematic development of any proposal to re-regulate the financial system in the aftermath of the subprime crisis. I take up the two questions in turn.

2.A What Caused the Subprime Crisis?

The superficially simple question of what caused the subprime crisis has elicited a remarkably wide range of answers even among informed commentators. I begin with my list of the key culprits, then turn to additional factors proposed by the President’s Working Group on Financial Markets.

Subprime Mortgage Losses and a Boom and Bust Real Estate Cycle

Defaulting subprime mortgages are, of course, an essential element in the crisis. The mortgages suffered from poor design and even more so from poor underwriting and origination. Predatory lending represented a particularly seamy aspect of the process. Finally, mortgage market institutions were poorly prepared to modify loans in lieu of foreclosure.

The good news, so to speak, is that regulatory remedies to stop predatory lending and encourage loan modifications are already well in process. For predatory lending, the Federal Reserve has already issued important additions to the Truth in Lending Laws, and HUD will soon announce parallel changes in the RESPA rules; see Federal Reserve System (2008) and

HUD (2008a). For loan modifications, Congress has created and HUD has now implemented the Hope for Homeowners program; see HUD (2008b).⁶

However poor the design and implementation of subprime mortgages, the crisis ensued only in the presence of a severe decline in US housing prices. This decline followed a common scenario for a real estate cycle:⁷

- A financial innovation provided a major impetus to expand mortgage lending;
- Increased lending raised housing demand, which in turn raised house prices;
- Rising house prices encouraged still more lending, thus creating a self-fulfilling and continuing circle of rising lending and rising house prices.
- Eventually, an affordability crisis and market crash occurred, as the market prices for housing became inconsistent with the economic fundamentals of homeowner affordability.

Real estate cycles in this form are repeated with remarkable historical regularity, so it is an intriguing question why sophisticated financial investors continued to hold mortgage assets even as the real estate market prices became increasingly divorced from the affordability fundamentals. There is also the related question why the monetary authority did not take actions to dampen the up-leg of the cycle.

In my view, a good part of the answer is that the impressive US post-war record of no aggregate decline in residential house prices caused the market participants to lose sight of the economic reality that significant house price declines could and would occur at some point.⁸

⁶ To be clear, loan modification programs are likely to have limited success in deterring mortgage foreclosures. The Congressional Budget Office analysis of the Hope for Homeowners program, CBO (2008), is very instructive in showing that even with a significant subsidy, the program is expected to help only a small fraction of defaulting subprime loans.

⁷ See Jaffee (1994) for a more extended discussion of real estate cycles, including an analysis of the Swedish real estate collapse and recovery of the early 1990s.

⁸ To be sure, individual house prices often fall, and there have been a number of important regional house price crashes. But these are basically idiosyncratic events which can be ignored by a large investor holding a geographically diversified mortgage portfolio.

Even now, we have observed only one national house price crash in 85 years, making this a low-probability, if very high consequence, event. It appears that even very smart people may err in treating low probability events as if they will not occur at all; see, for example, Kunreuther, Novemsky, and Kahneman (2001).

It is also critical to recognize that while subprime loan losses are clearly a necessary element in a crisis of the same name, they are by no means sufficient to have required bailouts of the largest US financial firms. After all, subprime loans appear to represent no more than 4 percent of all US investment securities, and the aggregate loss rate on subprime loans in the end may not exceed 25 percent.⁹ Using these numbers, a “representative” US investment portfolio would suffer a one-time loss of 1.0 percent ($= 0.04 \times 0.25$) as a result of its subprime investment. This is certainly not a number that would be expected to bring the largest US financial firms to their knees

Concentrated and Cash Flow Mismatched Investment Portfolios

The portfolio strategy followed by the primary investors in subprime mortgages and their derivatives is the key factor that transformed losses on a relatively minor asset class into the most severe financial crisis since the Great Depression. The investment strategy had two key elements:

- 1) The portfolios were highly concentrated in subprime mortgages, achieved by over-weighting the asset class and by taking on the riskier tranches in subprime securitizations.
- 2) The portfolios were funded with short-term debt. Although this required frequent rollovers, no problems were anticipated since the underlying assets could serve as collateral. The implied interest rate risk was either accepted—the so-called carry trade—or was synthetically hedged with interest rate derivatives.

⁹ These are the author’s estimates, since there are no official or dependable numbers for subprime loans outstanding or losses realized. My estimate that subprime loans outstanding equal 4 percent of all US investment securities is computed as \$2 trillion subprime loans outstanding relative to \$50 trillion in total US non-financial debt and stock equity as of September 30, 2008 (from the Federal Reserve Flow of Funds data). The 25 percent aggregate loss rate is computed as the product of a 50 percent default rate and a 50 percent rate for the loss given default. These numbers also imply expected total subprime losses of \$500 billion (=25% of \$2 trillion), which appears to be in line with other estimates.

As long as the mortgage losses remained moderate and the funding rollovers went smoothly, this investment strategy was immensely profitable based on leverage, maturity mismatch, and the high coupons available on the underlying mortgages.

When house price declines began, however, the negative consequences for the investing firms were far greater than they anticipated. The confounding factor was that portfolio losses were transformed into an unmanageable liquidity crisis. That is, the investment firms were unable to rollover their maturing debt because the potential lenders were unsure of the value of the subprime collateral being offered to secure the loans. The valuation of securitization tranches of risky mortgages is very difficult because the quantitative methodologies are technically complex and highly dependent on the assumed future loss ratios. Also for this reason, immense bid-ask spreads developed in the trading markets for these securities, thus reinforcing the lenders' concerns about the collateral value. In these circumstances, not to lend at all was a common and sensible conclusion.

Securitization and the Credit Rating Agencies¹⁰

Securitization and the credit rating agencies are now commonly included as two additional factors that might have contributed to the subprime mortgage crisis. For example, the recent report of The President's Working Group on Financial Markets (2008, p.1) included in its list of principal underlying causes of the crisis

- “a significant erosion of market discipline by those involved in the securitization process..”
- “flaws in credit rating agencies' assessments of subprime mortgage residential mortgages..”

There is no doubt, of course, that most subprime mortgages were securitized and that the rating agencies seriously over-rated these securities. There may also be little harm in the President's Working Group recommendation for increased disclosure of securitization risks and rating

¹⁰ A more a complete discussion of the issues in this section can be found in Jaffee (2008a).

agency methodologies.¹¹ However, I feel it is misleading to suggest that the re-regulation of securitization and the rating agencies is in any way a substitute for the re-regulation of the financial institutions that invested in subprime mortgages. In addition, securitization will continue to provide major benefits in linking local loan demands with capital market funding and in allocating the riskier components of these loan pools to the most knowledgeable and willing investors.

But let's look at the charges. First, with respect to securitization, the common charge is that it contributed to the origination of poor quality loans since each party in the securitization chain could ignore the risk knowing that it would not be the final holder. But, of course, there must be a final holder, and as it happened with subprime securitization, these holders were the largest and most sophisticated institutional investors in the world. It thus seems implausible that these investors were systematically either duped or negligent in evaluating the subprime risks just because they were securitized.¹² The fault is thus not in the securitization process, but in the investment decisions and the regulations that allowed investors with systemic responsibilities to take on highly risky positions,

Second, with respect to the rating agencies, while it has become a popular Congressional game to roast these firms for their serious errors in rating subprime mortgages, the agencies' track records in rating a wide range of securitization classes—auto loans, credit card loans, etc.—over a long time period indicates a predominance of upgrades, not downgrades. This

¹¹ It should also be noted that the prospectuses for subprime securitizations would have fully described the risks, so no serious investor would have been misled into believing that the securitization was based on anything other than risky mortgages. The rating agencies have also always disclosed the methodologies they use.

¹² If the term “subprime” was not considered a sufficient disclosure of high risk, data provided by the Mortgage Bankers indicated as early as 2002 that extremely high rates of delinquency and default occurred on subprime mortgages as a result of the dot-com bust. Indeed, FICO scores on securitized subprime loans were raised significantly and steadily after 2002 as a result of concerns raised by these disclosures. For further discussion, see Jaffee (2008a).

suggests that the general bias, if any, has been toward a pessimism in ratings, albeit with the subprime experience the major exception. It is thus just as plausible to suggest the agencies' moral hazard has been to offer conservative ratings in order to protect their reputation as it is to suggest that the agencies over-rated subprime mortgages to garner the fees.

My conclusion is that the re-regulation of securitization and the ratings agencies is a diversion, and that the key regulatory thrust must be related to the bankruptcy and threatened bankruptcy of the largest US financial firms. We now turn to the issue of the Treasury and Federal Reserve felt it necessary to bail out these firms.

2.B Why Did the Treasury and Federal Reserve Provide Bailouts¹³

A bankruptcy process starts immediately when a financial firm is unable to rollover its maturing debt. This is true even if the firm is solvent, meaning that its asset values exceed its liabilities. It appears that this would have been the exact fate of Bear Stearns, American International Group (AIG), and the GSEs in the absence of their government bailouts. Indeed, it was the fate of Lehman Brothers for whom no bailout was provided. This raises the question of why the firms were, in fact, bailed out.

Based on official statements, both Bear Stearns and AIG were rescued because they were too interconnected to fail.¹⁴ The reference here is to the central role both firms played as market makers and counterparties in the worldwide market for derivatives. These derivatives included the more mundane interest rate and foreign exchange swaps and the more exotic and riskier credit default swaps. These derivatives are mainly traded over-the-counter, with the investment banks and AIG, among others, serving as market makers and counterparties, individually

¹³ Material in this section is based in part on Jaffee and Perlow (2008).

¹⁴ On Bear Stearns, see Cox (2008, p. 1); on AIG see President's Working Group on Financial Markets (2008, p.4).

tailoring each transaction in terms of principal amounts, maturity, payoff events, and other technical features (such as the strike price when the contract is an option). As a result of this large and sophisticated market, financial firms (including banks and hedge funds) have created a complex network of interlinking derivative positions—for example, hedge fund A enters into a swap with hedge fund B because it knows B has hedged certain risks with investment bank C. This network creates systemic risk as an externality, since if one key counterparty were to fail on its derivative obligations, the failure would likely create a cascade of failures larger than any single counterparty has the incentive to try to prevent.

The bailout of the GSEs (Fannie Mae and Freddie Mac) is somewhat more complicated than Bear Stearns and AIG. To be sure, the GSEs are perhaps the world's largest counterparties in the markets for interest rate swaps and swaptions (options based on swaps), and their failure on these contracts could well have had systemic effects as large as Bear Stearns or AIG. Indeed, Secretary of the Treasury Paulson [2008] in explaining their bailout stated:

“...[this] program is the best means of protecting our markets and the taxpayers from the systemic risk posed by the current financial condition of the GSEs.

He was also referring, however, to the disruptive effects if the firms had defaulted on their approximately \$5 trillion of capital market obligations—debt and guaranteed mortgage backed-securities. There was also serious concern that the GSEs could not continue their mission to support the US mortgage market if doubts remained concerning their ability to rollover their debt or to meet their regulatory capital requirements. Technically, the GSEs were placed in a conservatorship, under the control of their regulator, the Federal Housing Finance Agency (FHFA). Under this status, the GSEs no longer must meet capital requirements, and if necessary, they have access to the Treasury to borrow, sell mortgages, and obtain capital infusions.

3. The Future Regulation of Investment Banks and the GSEs

Bear Stearns, AIG, and the GSEs were bailed out because the losses they incurred on their investment portfolios created the high likelihood of an imminent bankruptcy, which in turn posed a systemic risk to the full financial system. In all three cases, the systemic risk included the firms' role as major counterparties in the over the counter derivatives market. In the case of the GSEs, additional systemic risks were created by the firms \$5 trillion of debt and MBS obligations and their critical role in stabilizing the mortgage markets. In this section, I develop a framework and proposal for reregulating the investment banks and the GSEs in a post-crisis environment. I begin with a description of the problem at hand.

3.A The Dilemma for Effective Regulation

The basic regulatory dilemma posed by the investment banks and the GSEs is that they have carried out two parallel, but very different, business activities. On the one hand, they operate what are basically hedge funds, that is highly leveraged and cash flow mismatched portfolios. I will refer to this as their hedge fund division. On the other hand, they carry out systemic missions, serving as key counter parties in the OTC derivatives market, and in the case of the GSEs, with the additional mission to stabilize the mortgage markets. I will refer to this as their infrastructure division. Both divisions provide fundamental economic benefits.

The hedge fund divisions are major participants in the fundamental market activity of aggregating information. While the funds are operated for private profit, they generate the social benefits of price discovery and efficient resource allocations. Both the private profits and social benefits will generally be maximized if the funds are managed with the least regulatory intrusion.¹⁵ The problem arises, however, if the hedge fund is part of a larger holding company,

¹⁵ See Wallison (2008) for a strong statement in support of the non-regulation of hedge funds.

and one where another division carries out an infrastructure function that would require the firm to be bailed out if losses from the hedge fund threatened bankruptcy for the overall entity.

With the problem posed in this manner, the general structure for the solution becomes clear: one must separate the two activities in a manner that makes the infrastructure division fully bankruptcy remote from any losses created by the hedge fund division. It turns out that there is long experience in both insurance and banking regulation with methods that offer solutions to exactly this problem. I now briefly review the techniques.

3.B The Monoline Insurer Solution

Insurance regulation in the US has long dealt with the dilemma that insurance lines have widely varying risk characteristics. At one extreme, the catastrophe lines, with very fat tailed risk distributions, unavoidably create the potential for insurer default. That is, there is no feasible level of capital that a catastrophe risk insurer could hold that would allow it to pay all possible claims.¹⁶ If the insurer defaults, policyholders with claims receive prorated payments. This risk of nonperformance, of course, reduces the insurance premiums paid by policyholders. At the other extreme, the law of large numbers basically applies to many insurance lines—such as auto insurance—with the result that the need for capital is limited and there is very little risk of insurer default. I will call these standard lines.

As a further complication, most insurers operate within multiline insurance holding companies, raising the possibility that a holding company could own subsidiaries covering both catastrophe lines and standard lines. This creates the possibility that losses on the catastrophe line could bankrupt the holding company, creating losses for policyholders with claims on the standard line. This issue came to the fore in 1956 when a firm (Mortgage Guaranty Insurance

¹⁶ This assumes that there is an excess cost of holding capital within an insurance firm. This seems to be true, since all insurers significantly limit the amount of capital they hold. For a further discussion and a model of insurer default see Ibragimov, Jaffee, and Walden (2008a).

Company, MGIC) petitioned to offer private mortgage insurance (PMI)—that is, insurance to be sold to lenders as protection against the risk of default by mortgage borrowers. It was well understood that PMI is a catastrophe line, since an earlier vintage of private mortgage insurers had failed early in the Great Depression. The regulatory response was to allow the firm to be chartered, but only as a monoline insurer—it could offer only private mortgage insurance. The effect was to ensure that policyholders on standard lines would not be subject to the default risk that would be created if a multiline holding company also began to offer PMI coverage.¹⁷

Starting in the early 1980s, other insurers petitioned for authority to offer bond insurance, which like mortgage insurance, has a fat distribution of losses. This initial request covered municipal bonds, but it later expanded to corporate bonds, and most recently even to securitizations. The regulatory response was also to charter these firms as monoline insurers.

Overall, the regulatory structure for monoline insurance has worked very well. By construction, of course, there have been no events in which the failure of a monoline catastrophe insurer created any losses for policyholders on standard lines. Equally interesting, even with the losses arising from the current subprime crisis, there have been no failures—yet—among either the private mortgage or the bond insurers. This reflects on the substantial capital held by these firms, in part due to regulatory requirements and in part reflecting the market discipline imposed on these firms by their bond holders and policyholders.

3.C The Glass-Steagall Solution

Commercial banking legislation equally well has a long tradition of applying a monoline structure to control the undesired spillover of risks. The original 1932 Glass-Steagall Act was a pure monoline restriction: it allowed a commercial bank to carry out a “banking business”—

¹⁷ See Jaffee (2006) for an industrial organization study of the private mortgage insurance industry and its monoline requirements.

generally defined as taking deposits and making loans—and nothing else. The Act clearly separated commercial banks from investment banks, but it actually separated commercial banks from any other business line.

It became apparent that this extreme monoline restriction also created costs; even business activities that could be efficiently carried out by commercial banks were prohibited. The 1956 Bank Holding Act thus modified the original Glass-Steagall Act, creating bank holding companies which could own one or more commercial banks, and could carry out, at the holding company level, activities that were “closely related to banking”. The Federal Reserve was given the regulatory authority to determine what activities met this requirement. The Fed was also responsible to ensure that the safety and soundness of commercial bank subsidiaries was the first priority in bank holding company management. For example, the Fed would scrutinize any requests to upstream capital from a subsidiary commercial bank to the holding company, to confirm that the safety and soundness of the commercial bank was properly protected. Over the years, the Fed expanded the list of activities that were allowed as “closely related to banking”, but it never authorized a bank holding company to carry out either an investment banking or insurance business.

The most recent evolutionary stage of Glass Steagall was the Financial Services Modernization Act (FSMA) of 1999. This Act created a “financial holding company” as a special status for a bank holding company, with the power to operate both investment banking and insurance subsidiaries, along with its commercial bank subsidiaries. The Fed again has the regulatory power. It is under this authority that bank holding companies such as Citigroup and Bank of America operate both investment banks and commercial banks. It is also under this authority that Goldman Sachs and Morgan Stanley recently became bank holding companies.

While the MSFA is often described as repealing Glass-Steagall, that is not true. Most importantly, the Federal Reserve continues to impose special standards on the bank holding companies that own investment banks. For one thing, these bank holding companies must meet the Fed's highest capital standards (referred to as "well capitalized"). For a second thing, the Fed continues to require the holding company to give the highest priority to the safety and soundness of its commercial bank subsidiaries. For example, the Fed will still apply a safety and soundness test to any request to transfer capital from a commercial bank subsidiary to the investment bank subsidiary.

3.D A Proposal for the Effective Regulation of Investment Banks

Even with the largest investment banks now all operating as subsidiaries within bank holding companies, the risk remains that losses from the hedge fund division of the investment bank subsidiary could endanger the entire bank holding company. And if that holding company also carries out infrastructure activities, such as operating as a counterparty in derivative markets or as a core participant in the country's payment system, then there is the risk that the government will again resort to bailouts in order to avoid a systematic failure.¹⁸

My proposal is to impose a monoline requirement on any investment bank that wishes to carry out both hedge fund and infrastructure activities, whether it operates independently or as part of a bank holding company. The goal is clear: losses created by the hedge fund division must not be allowed to threaten the performance of any infrastructure divisions. A particularly simple and clean version of the proposal would require that infrastructure divisions be structured

¹⁸ It could be argued, as well, that the risk of losses from the investment banking subsidiary would also threaten the commercial banking subsidiary. However, as noted in the text, the Fed should be ensuring that the commercial bank subsidiaries are bankruptcy remote from the holding company. Bank customers, of course, may not make sharp distinctions between bank holding companies (Citigroup as an example) and commercial banks (Citibank as an example), and thus a bank run might start just on the news that the holding company is in financial distress. This would require standard use of the Fed's discount window, but this should not impose any costs on the government and therefore would not be considered a bailout.

as separate subsidiaries and with dedicated capital, thus providing the same protection to these subsidiaries that is currently provided to commercial bank subsidiaries within bank holding companies. A further benefit of this structure is that the regulator could readily impose comparable monoline restrictions on any future activities that might be deemed to have systemic importance.

This proposal is not cost-free. For one thing, there may be administrative costs associated with isolating the infrastructure divisions with separate subsidiaries, although for very large bank holding companies these costs should be minor. A more significant cost arises from the restriction that the capital of the protected infrastructure subsidiary cannot be applied to cover losses arising from the activities of any other subsidiaries of the bank holding company. That is, the normal diversification benefit of applying capital across the divisions of a multiline or conglomerate entity are intentionally truncated here in the interest of the safety and soundness of the protected subsidiary. The proposal, however, still creates a Pareto Optimal outcome, in the sense that any alternative solution would necessarily make at least one class of agents—the taxpayers in particular—worse off.¹⁹

The proposal made here is not meant to preclude additional regulatory refinements and changes. As one example, it could well be that decisions will be made to raise the risk-based capital requirements imposed on banks as a further means to improve their future safety. However, it is worth remembering that Bear Stearns and AIG required bailouts even though they satisfied their capital requirements. That is, the proximate source of their failure was their inability to rollover maturing debt, although this liquidity crisis was no doubted magnified by

¹⁹ This statement is based on the optimality conditions of monoline restrictions as recently developed in Ibragimov, Jaffee, and Walden (2008b).

concern over the firms' solvency. A monoline restriction remains the only regulatory response that can with high certainty rule out future episodes requiring bailouts.

A second additional regulatory response would be to eliminate the systemic risk that necessitated the bailouts. Indeed, there are already initiatives to improving the clearing facilities for derivatives. While such initiatives are definitely constructive, the tailor-made character of the OTC derivatives limits the amount of potential clearing.

More generally, regulators must anticipate that financial institutions and markets will continue to innovate, creating new and risky instruments and therefore the potential for new crises. In this context, monoline restrictions have the important attribute that they can be rapidly applied to any innovation that threaten systemic risks, as long as the regulators can recognize the potential for systemic failure.

3.E A Proposal for the Effective Regulation of the GSEs

The government sponsored enterprises (GSEs, that is Fannie Mae and Freddie Mac) also carry out two distinct activities. The first is their retained mortgage portfolios through which the firms jointly hold approximately \$1.5 trillion of mainly mortgage backed securities and which are funded by the issue of approximately the same amount of corporate debt.²⁰ The retained portfolios of both firms reflect a major cash-flow mismatch in that the debt issued to fund the portfolio is of much shorter maturity than the MBS that are held. In addition, the firms made significant investments in subprime mortgage securities in the last two years. Finally, the portfolios are hugely leveraged—at about \$40 to \$1—since the legislated capital requirement is only 2.5% of assets. Thus in all 3 characteristics—leverage, cash-flow mismatch, and subprime

²⁰ The capital requirement on the retained portfolios is legislatively set at 2.5% of assets, although even this requirement has been waived under the firms' conservatorship. The debt used to fund the retained portfolios is commonly referred to as agency bonds reflecting investor expectations of an implicit government guarantee, a guarantee which has been made explicit under the firms' conservatorship.

investments—the retained portfolios of the GSEs are remarkably similar to the hedge fund portfolios described earlier for the investment banks. And it appears that their bailout on September 7, 2008 was necessitated by the same issues of solvency and a liquidity crisis that necessitated the bailout of Bear Stearns and AGI.

The second business line for the GSEs is a securitization business in which they obtain sets of qualifying mortgages and securitize them into what are called Agency MBS. The GSEs guarantee the timely payment of interest and principal on their MBS issues, for which the firms earn annual guarantee fees. The GSEs currently have outstanding approximately \$3.5 trillion of such securitized mortgage pools. It appears that the GSEs placed a relatively small amount of subprime mortgages into these Agency MBS compared to their retained portfolio investments. A likely explanation is that the GSEs can profit from the much higher coupon rates offered on subprime mortgages only if they are the actual investor as in the retained portfolios.

My proposal for the GSEs also follows a monoline structure by separating the hedge-fund like retained portfolios from the Agency MBS division. The actual implementation would occur at the time the firms are released from their conservatorships. At that time, I propose maintaining the Agency MBS division as a government agency, while I would spin off the retained portfolio to the shareholders with the resulting entity functioning as a private sector investment company with no continuing links to the US government. The following provides more specific as to how I expect the two entities to function.

The MBS Division as a Government Agency

A simple view of my proposal for the MBS division is to consider it as a new government agency providing mortgage market access for middle-income families much as the existing FHA and GNMA programs provide mortgage market support for lower-income families. I believe that

the FHA/GNMA combination provides a useful model because it represents a long-standing, stable, and successful program for supporting the homeownership goals of lower-income families; see Green and Wachter (2005).

Since it began in 1934, the FHA has operated to insure the mortgages on homes for lower-income families, thus providing these families with access to mortgage funding that would not otherwise be available.²¹ The insurance premiums are paid by the borrowers and must be set to cover the expected losses, with the exception of special programs on which subsidies are explicitly intended.²² Over its long history, the primary FHA program has been self-supporting and has required no government appropriations. GNMA was created in 1968 as a government agency operating within HUD, with the primary task of securitizing the government guaranteed FHA and VA mortgages. Indeed, GNMA pioneered the concept of mortgage-back securities. GNMA has continued to operate with a small staff to certify the pools of FHA and VA mortgages created by private sector originators as mortgage-backed securities. GNMA provides a guarantee equivalent to the US Treasury on its MBS, but since the underlying mortgages are already government guaranteed, there is no risk.

My proposal is to transform the current Agency MBS division of the GSEs into a government agency that would provide the same services of government insurance and securitization to middle-income families that the FHA/GNMA currently and successfully offers to lower income families. I will refer to the new agency as MIMA (middle-income mortgage agency). Just as the FHA charges the borrowers an actuarially-based insurance fee, so will

²¹ The recent era of subprime mortgages is a noteworthy exception. To its credit, the FHA did not try to compete with the subprime mortgages, but instead allowed its volume to dwindle to close to zero. Indeed, there were discussions of the demise of the FHA. In the wake of the subprime crisis, in contrast, FHA volume has been soaring, and these numbers do not yet include the agency's participation in the new Hope for Homeowners program that offers access to FHA loans for subprime borrowing facing imminent foreclosure.

²² The new Hope for Homeowners program is an example of an FHA program with an explicit subsidy. See the Congressional Budget Office (2008) for a very useful analysis of how this subsidy is being computed.

MIMA, although with its more credit-worthy clientele I expect the premium to be much lower. The GSEs have been charging MBS guarantee fees on the order of 20 bps annually, and I see no reason why that would change under MIMA. I would also expect private sector mortgage originators and mortgage investors to welcome the new government agency, for the same reason they enthusiastically use the FHA/GNMA agencies. In particular, private sector firms will continue to originate and hold the mortgages, so they would face no government crowding out. Similarly, the private market securitizers of “jumbo” mortgages—above the GSE limits for conforming mortgages--would continue to operate as they do currently. The only losers, so to speaker, are the subprime originators, from whom we might not expect to hear very much at all.

The Retained Mortgage Portfolios as Private Sector Hedge Funds

The second part of the proposal is to spin off the retained mortgage portfolios to the GSE shareholders, and to transform these entities into what would become basically publically traded mortgage REITs.²³ The GSE shareholders would receive the mortgage assets, bond liabilities, and the net worth of the retained portfolios as it exists at the time of the spinoff. These entities would also receive all of the intellectual capital of the GSEs, which would include their proprietary software for evaluating loan quality, techniques for hedging interest rate risk, and similar items. As private sector entities, the new firms would no longer be constrained by the limitations of the GSE charters. In particular, they would be allowed, for the first time, to originate mortgages directly. A similar path to privatization was taken earlier by Sallie Mae—the student loan government sponsored enterprise—and it prospered for many years based on its new power to originate student loans.

²³ This proposal presumes there would be no significant value to the government to continue to operate the retained portfolios. On the contrary, the GSEs have argued strongly that the retained portfolios were important for carrying their market mission. See also the discussion in Roll (2003).

The End of Government Sponsored Enterprises

This solution ends government sponsored enterprises, and well it should. Many commentators, including this author, have long argued that the concept of a privately owned, profit maximizing company combined with a public mission and an implicit government guarantee was a recipe for disaster; see, for example, Jaffee (2003). The disaster has now occurred. The proposal offered here reassembles the components of the GSEs into an equitable and efficient structure. Given the continuing Congressional support for homeownership, it is appropriate to provide mortgage market access for middle-income families, as the new agency will do. At the same time, the GSE shareholders will own and manage the retained portfolios, albeit as private sector entities.

Low-Income Housing Support

One further issue concerns the support to lower-income borrowers that has been provided by the GSEs through their required housing goals and the recently passed profit fees. Congressional support of the GSEs was based in significant part on the premise that GSE aid to lower-income families was basically available at no cost; it certainly was perceived to be easier to “tax” the GSEs than to obtain Congressional appropriations to increase the HUD budget for direct housing subsidies. As their bailout costs have demonstrated, however, the GSE support for lower-income borrowers was actually far from free. Instead, Congress should now recognize that specific appropriations to the FHA represent a much more effective means to help low-income borrowers than any link to Fannie and Freddie could ever provide.

4. Concluding Comments

This paper has offered a framework and proposal for the re-regulation of investment banks and the GSEs in a post-crisis world. The basic goal is to minimize the likelihood that future losses on risky portfolios would pose systemic risks requiring government bailouts of the offending firms. The key feature of the proposed solution is to isolate the risky portfolios—called the hedge fund divisions—from the activities that create the systemic risk—called the infrastructure divisions. Comparable regulatory mechanisms have been in long use in regulating catastrophe insurers in the form of monoline restrictions and in regulating bank holding companies through modified Glass-Steagall restrictions. Given that all major investment banks are now already part of bank holding companies, the only real change for the banks is to ensure that the capital of the infrastructure division is bankruptcy remote from any possible failure of the overall holding company. The proposal has more major ramifications for the GSEs, since it would make the MBS securitization division a government agency in parallel with the FHA and GNMA, while it would spin-off the retained portfolios to the GSE shareholders, but with the requirement that the entity function without any sense of government support.

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