**Commentary: Lawrence J. White**

# Financial Regulation and the Current Crisis: A Guide for the Antitrust Community

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## COMMENTARY

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Lawrence J. White*

Abstract

The U.S. financial crisis of 2007-2008 has been a searing experience. The popping of a housing bubble exposed the subprime lending debacle, which in turn created a wider financial crisis. In its response to this crisis, the federal government has provided financial assistance to a number of financial institutions that are often described as "too big to fail" (TBTF) – which, to those who associate antitrust with size, seems to bring antitrust potentially into the picture.

This paper will offer a guide to the antitrust community that will cover the U.S. financial sector, financial regulation, and the debacle and subsequent financial crisis. The tensions that can arise between financial regulation and antitrust will be highlighted. TBTF is not one of them, however, because TBTF is about size and interconnectedness, but not about competition and market power. Although much progress has been made in removing anticompetitive elements from financial regulation over the past three to four decades, there are still important advances that can be made. The paper concludes by offering a set of policy recommendations for the removal of some of the important remaining elements of financial regulation that impede competition.

## I. Introduction

The U.S. financial crisis of 2007-2008 has been a searing experience. The popping of a housing bubble exposed the subprime lending debacle, which in turn created a wider financial crisis, which has had international ramifications; and the weakened financial sector has contributed to a U.S. recession that currently is the worst since the early 1980s and that may become the worst since the Great Depression of the 1930s.

One theme in discussions of the crisis has been the roles and regulation of very large financial institutions: large commercial banks (e.g., Citigroup, Bank of America, JPMorgan Chase, Wells Fargo); large investment banks (e.g., Bear Stearns; Lehman Brothers; Merrill Lynch; Morgan Stanley; Goldman Sachs); large insurance conglomerates (e.g., American International Group

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[AIG]); and large "government sponsored enterprises" (GSEs) that are devoted to residential mortgage finance (Fannie Mae and Freddie Mac). Many of these institutions are described as "too big to fail" (TBTF). And discussions of financial size and excessive bigness seem to invoke antitrust issues.

This paper will offer an overview of the financial sector, financial regulation, the subprime debacle, and the wider financial crisis that followed.[1] An antitrust – and thus a competition -- perspective will be maintained throughout. This perspective will reveal that there has been a longstanding tension between the operation of financial regulation and the promotion of competition. Beginning in the late 1960s that tension progressively lessened in many areas of financial regulation, as important anticompetitive elements of financial regulation were eliminated (although there was one important area – the regulation of large credit rating agencies – where new regulation fostered less competition, with consequences that can be linked to the subprime lending debacle). The financial sector has considerably fewer regulatory impediments to competition today than was true forty years ago, although regulatory impediments to competition still remain in too many places. This perspective will also reveal that, although TBTF is a size issue, it is not an antitrust issue, since competition issues are not at stake (and modern antitrust is about competition, not about size).

This paper will proceed as follows: Section II will set the stage by providing an overview of the important features of finance and of financial regulation in the U.S. Section III will add a discussion of U.S. policy toward housing finance, since housing finance has figured so prominently in the financial crisis. Section IV will offer a selective history of financial regulation and some of the anticompetitive features of financial regulation that have arisen at various times, which will highlight the history of tensions between financial regulation and antitrust. Section V reviews the

[1] A comprehensive discussion of these topics is beyond the capabilities of this paper. In many places, however, this paper will draw on other writings of the author that have addressed these topics at greater depth: e.g., White (1986, 1991, 2002, 2003, 2008, 2009a, 2009b, 2009c, 2009d, 2009e).

subprime lending debacle and the wider financial crisis that followed and uses that backdrop to discuss the concept of financial institutions that are considered to be TBTF. Section VI concludes with a set of pro-competitive policy recommendations for the financial regulation area.

## II. Finance and Financial Regulation

### A. Understanding Finance.

#### 1. Finance is special.

Finance is special in at least three ways: First, finance is ubiquitous. Almost all enterprises need finance in order to obtain the resources for investments and to bridge the gap between the time when inputs are paid and the time when outputs are sold. Almost all governments need finance, again to obtain the resources for investments and to bridge the gap between the time when expenditures are made and the time when tax revenues are received. Almost all individuals need finance, so as to accommodate large investments and purchases and to bridge smaller expenditure/income gaps. In addition, finance underlies the operation of the monetary/payments system of any modern economy.

Second, finance unavoidably involves a time dimension: A loan or investment is made at an initial point in time;[2] and then repayment is expected to occur at some future point in time.[3] This time dimension means that lenders always face some uncertainty as to whether the borrower will actually repay the loan. This uncertainty reflects the lender's informational disadvantage ("asymmetric information") vis-à-vis the borrower:[4] Before making the loan, the borrower may have difficulty figuring out whether a prospective borrower is likely to repay the loan;[5] and after making a loan, the lender may have difficulty in monitoring the borrower's actions, some of which may adversely affect the borrower's likelihood of repaying the loan.[6]

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[2] For ease of exposition, the following discussion will be in term of "loans" that involve a "lender" and a "borrower"; but the same principles apply to issues of equity investment rather than lending.

[3] There is a similar time element to insurance: A commitment (to insure against an event) is made at an initial point in time (with the insured party making a "premium" payment); and then subsequently, if the insured-against event occurs, the insurance payment is made.

[4] Because issues involving bank deposits and depositors will arise frequently in the discussion below, it worth remembering that a depositor is a lender (creditor) to a bank and thus potentially faces all of the problems of a lender.

[5] This is the problem of adverse selection.

[6] This is the problem of moral hazard.

Third, largely because of the time dimension, finance can easily become complicated; and many individuals (especially those who have difficulties dealing with numbers) appear to have difficulty comprehending even simple financial concepts. More complicated concepts clearly make the problem worse.[7]

2. Financial intermediaries, financial facilitators.

The essence of finance is the loan, which ultimately involves a borrower and a lender.[8] However, because of the asymmetric information problems that pervade finance, there are often parties in between. It is worth discerning two major categories of parties: financial intermediaries and financial facilitators.

Financial intermediaries are companies that hold financial assets (e.g., loans, bonds, equity shares) and finance those asset holdings by issuing liabilities. Commercial banks and other depositories, investment banks, insurance companies, pension funds, mutual funds, finance companies, and the GSEs are major categories of financial intermediaries. Table 1 provides a sense of their relative importance. Leverage and capital are important phenomena for financial intermediaries. [Because discussions of financial intermediaries, leverage, and capital will recur throughout this paper, a "primer" in the appendix provides a non-technical explanation of the concepts and their implications.]

Financial facilitators are entities that facilitate financial transactions but that are not primarily involved in the holding (and financing) of financial assets. These entities include: brokers, dealers, underwriters, analysts, advisors, accountants and auditors, lawyers, and credit rating agencies.

3. Securitization.

[7] And sometimes specialized labeling doesn't help. "Credit default swaps" (CDSs), for example, are basically insurance contracts that protect against the default of a bond repayment obligation; but somehow CDSs have acquired a reputation for being exotic financial instruments that are difficult to understand. Similarly, the term "financial derivative" seems to invoke in many individuals an immediate reaction of "too complicated to understand".

[8] Again, the discussion readily extends to the concept of equity investment.

Because securitization has figured prominently in the discussion of the subprime debacle and of the problems of the GSEs, a brief explanation of the securitization process is warranted. The process of securitization is perhaps best illustrated by contrasting the "traditional" process of home mortgage lending by a financial intermediary (typically, a bank or a thrift institution) with the "newer" securitization method.

Under the traditional method, the bank would originate the loan and hold the loan as an asset in its portfolio. It would service the loan itself (i.e., collect the monthly payments and deal with any delinquencies). It funded the loan largely through collecting deposits (which, since 1933, have been federally insured). In essence, this was (and, for many depositories, still is) a vertically integrated process.

Under the securitization method, the loan is originated by a "mortgage bank", which does not hold the loan for any extended period of time. Instead, the mortgage bank either packages the loan (along with many other mortgage loans) into a security, or sells the loan to a "packager" or securitizer, who does the securitization, creating mortgage-backed securities (MBS).[9] The MBS represent claims on the stream of interest and principal payments by the borrowers on the underlying mortgage. The MBS can be a "plain vanilla" pro rata pass-through of the borrowers' payments to the security holders;[10] or the MBS can be "sliced and diced", with separate layers or "tranches" of MBS representing differing claims on the underlying cash flows.[11] Also, the servicing of the mortgage loan can be done by the originator, or the servicing can be done by another (specialist) firm.[12] The securitization method thus is considerably more dis-integrated than is the traditional

[9] The loans are usually placed in a bankruptcy-remote special purpose entity, so as to reassure the buyers of the securities that their claims are secure.

[10] This is true of the MBS that are issued by Fannie Mae and Freddie Mac.

[11] The distinctions among the tranches can be based on seniority (in terms of the absorption of losses from borrowers' defaults) and/or based on prepayments of mortgage principal and/or based on the nature of the cash flow (i.e., there can be "interest only" and "principal only" tranches from a MBS.)

[12] In addition, a separate category of "mortgage brokers" has sprung up, who help bring borrowers and originators together, thus adding an additional layer to the mortgage process.

method.

As compared with the traditional method, the securitization offers some clear advantages: By tapping the capital markets for funding, it allows the borrowing/lending process to gain access to a wider array of funders. For example, an investor, either directly or indirectly (e.g., through a mutual fund) can receive the payment streams from residential mortgages by buying residential MBS; under the traditional method, the investor could only place deposits in a bank or thrift institution. Further, so long as the risks are properly understood, the risks that attach to residential mortgages (the credit risk of default, and the interest rate risk that accompanies a fixed-rate 30-year financial instrument that usually allows penalty-free prepayments) can be "sliced and diced" and absorbed by those parties that are in the best position to absorb those risks. And it allows companies that have narrow specialties at which they excel (e.g., originating loans; servicing loans; packaging loans) to make good use of their specialties.

But securitization has drawbacks as well: First, the vertical dis-integration of the processes opens more avenues for agent-principal (i.e., moral hazard) problems in the relationships between the various parties. And, second, in the event that the borrower experiences difficulties in repaying, any potential for renegotiating the loan becomes far more difficult, because there is not a single lender with whom the borrower can negotiate; instead, there are the multiple fractional owners of the security or securities that have been issued against the package of mortgages, and various securities owners (if they represent different levels of seniority) may have different perspectives and interests in any negotiations, which the loan servicer may have difficulties representing.

B. Financial Regulation.

Financial regulation is ubiquitous as well. It encompasses a myriad of laws and regulations, at the federal and state levels, that include (but are not limited to):

-- Safety-and-soundness (prudential) regulatory provisions for banks, thrifts, credit unions,

insurance companies, pension funds, money market mutual funds, and government sponsored enterprises (GSEs);[13]

-- Consumer protection provisions across the same spectrum;

-- Information revelation requirements for these institutions;

-- Financial statement revelation and corporate governance requirements for publicly traded companies;

-- Rules that apply to exchanges and to the financial instruments that are traded on those exchanges; and

-- Information revelation and competency requirements for credit rating agencies.[14]

The ubiquity of financial regulation is surely linked to the three special characteristics of finance that were discussed above. However, because financial regulation is a central topic in this paper, it is worth stepping back and examining somewhat more formally why financial regulation is ubiquitous.

We start with the neoclassical microeconomics model of well-functioning markets, with a large number of competing and knowledgeable sellers and a large number of well-informed buyers. The benefits and the costs of these transactions are borne by the participants themselves; there are no significant spillover or externality effects. This is the world about which economists wax rhapsodic when they describe the efficiencies and social benefits that flow from competitive markets. It is the world that antitrust policy holds as an abstract ideal.

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[13] These are, specifically, Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System.

[14] The varied types of financial regulation are further complicated by a myriad of federal and state regulatory agencies: There are five federal regulators of depository institutions, as well as one or more regulator in each of the 50 states. The states also regulate lenders and mortgage originators that are not depositories. There is a separate federal agency that has responsibility for regulating Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System. There are two federal regulators of the securities markets and financial instruments, as well as 50 state regulators (and 50 state attorneys general, who are prepared to bring law suits against securities firms on behalf of their respective states' citizens). The regulation of insurance companies is exclusively the domain of the 50 states. Pension funds are regulated by two federal agencies, and again the 50 states also have a say. Consumer fraud in financial products can be the responsibility of yet another federal agency (the FTC), as well as the 50 states.

1. Market failure.

What could go wrong that could create a case for government intervention? What are the potential market imperfections or market failures?

First, competition could be absent, replaced by monopoly. Prices will be higher, output lower, and efficiency reduced in the presence of monopoly. That's why cities and/or the 50 states have traditionally limited by regulation the prices that can be charged by the local electricity company, the local natural gas company, the local water distribution network, and the local telephone company. Alternatively, states or localities have sometimes tried to provide these services themselves to their citizens.

Though this kind of monopoly power is only occasionally present in modern financial markets, it was a traditional argument for taming the perceived power of the local bank in a small community.[15] Perhaps the most prominent place in financial services today where market structure is likely indicative of market power is in credit card networks, where there are the two major networks (Visa and MasterCard) and two more modest networks (American Express and Discover). The rating agency market is similarly dominated by two large firms (Moody's and Standard & Poor's), a modest size firm (Fitch), and a few smaller competitors.

Second, there could be spillover or externality effects -- positive or negative -- from production or consumption activities. If an act of production or consumption affects third parties, outside of a market context, then the efficiencies of the market may dissipate. Too much of a negative externality (e.g., air or water pollution, or greenhouse gases) interferes with others' production or others' enjoyment of their consumption. Too little of a positive externality (e.g., the positive spillovers from an individual's education) similarly reduces the benefits for society more widely.[16]

[15] An illustration, at least in fiction, would be the mean Mr. Potter, the owner of the local bank, in the 1946 film "It's a Wonderful Life".

[16] Public goods – such as the provision of defense or police services, or mosquito eradication efforts – can be

Bank runs are in the category of negative externality.[17] The failure of one bank could cause poorly-informed (see below) depositors at other banks to become nervous and to "run" on their bank to withdraw their deposits, which could cause the failure -- or at least, the temporary closure -- of other banks, with yet further "contagion" or cascading effects. On the other hand, there does seem to be a positive social benefit to households' becoming homeowners (although, as we have recently learned to our collective sorrow, home ownership is not for everyone), which argues for some encouragement for home ownership -- and encouragement inevitably involves finance.[18]

Third, as noted above, the problems of asymmetric information -- one side of a transaction's knowing things about itself or its actions that the other side doesn't know -- are pervasive in finance. The essential acts of finance -- lending or investing or insuring -- involve initial commitments and subsequent repayments. If the borrower knows more about its repayment proclivities than does the lender, the latter is at a disadvantage; if an insured party knows more about its riskiness than does the insurer, the latter is at a disadvantage. The presence of these asymmetries can lead to partial or complete breakdowns of markets that, in the presence of better information, could thrive.

Fourth, an extended version of the asymmetric information problem might be termed the "widows and orphans" problem: Some market participants may be incapable of looking after their own best interests and will not learn from their own mistakes. As discussed above, many retail customers in financial transactions -- whether as depositors or borrowers or investors -- may well qualify here.

These four rationales would probably qualify with many economists -- perhaps most -- as "legitimate" qualifications to the standard argument with respect to the efficiencies of the competitive markets.[19]

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considered to be a good or service where the positive externalities are pervasive.

[17] For arguments along these lines, see Diamond and Dybvig (1983), Postlewaite and Vives (1987), and Chen (1999).

[18] This argument will be expanded upon below.

[19] As is argued below, however, whether government should attempt to address the market failure requires more

There is, of course, a fifth motive for regulation that would not be in that list: income redistribution. Regulation can be used to redistribute income from one category of market participants to another group of participants. Though usually a far less efficient form of income redistribution than a direct subsidy, it is also less blatant and therefore easier to "fuzz up" and justify under some other rubric. In the financial sector, limits on anything from fees and interest rates to specific bans on financial products may well have substantial income distribution consequences but be justified -- with greater or lesser legitimacy -- under one or more of the earlier four rationales.

2. Government failure.

Lest one think that only markets fail, it's worth remembering that governments too can be imperfect.

First, asymmetric problems apply also to government efforts to regulate, with the consequence that government's inadequate information leads to inferior regulatory outcomes.

Second, when government does make regulatory mistakes, undoing those mistakes may well be difficult. Often there are few or no alternatives, and the costs persist -- or there are workarounds (take the activity abroad; or try an alternative unregulated activity that isn't as good), but at higher costs.

Third, the pursuit of income distribution gains through regulation can lead to the "capture" of the regulatory process, with consequent distortions in otherwise efficient allocations of resources. The large gainers from capture find it worthwhile to devote the effort to doing so; the more numerous small losers from capture find the costs of organizing to resist capture to be too great.

Fourth, even if regulatory capture doesn't occur, the pursuit of such gains – "rent seeking" -- can cause large amounts of society's scarce resources to be squandered in wasteful (and often mutually nullifying) efforts to influence those regulatory outcomes.

In sum, because both markets and governments are prone to imperfections, any proposal for

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than just an identification of the market failure.

governmental intervention to correct a market imperfection should pass a benefit-cost test and a threshold of non-triviality.

C. Types of Financial Regulation.

At first glance, government regulation may appear to be a jumble of intervention, with no discernible pattern. There are, however, major categories of regulation that can help organize our thinking about regulation.

First, there is "economic" regulation: the direct control over prices, profits, entry, and/or exit. This form of regulation is often used to address monopoly problems (such as the public utility regulation mentioned above), but it may be used to address other problems and is often employed in income redistribution efforts. In financial services, "usury" limits on interest rates are (arguably) an effort to deal with the market power of lenders. Merchants' periodic campaigns to try to limit the "interchange" fees levied by the credit card networks can also be interpreted through this market-power lens. Consumers' efforts to limit credit card fees, on the other hand, are not so much about the abuses of monopoly (after all, there are hundreds of credit card issuers, who are the entities that determine these fees) as the problems of asymmetric information.

Second, there is health-safety-environment regulation, which is usually aimed at altering production processes or product characteristics to bring about desired improvements in health, safety, or environmental outcomes. The underlying problems that are being addressed may be those of externalities or of asymmetric information.

In the financial sector, safety is the paramount concern. In turn, the focus on safety comes in two versions: safety as applied to financial institutions; and safety as applied to the customer.

Safety as applied to financial institutions usually is formalized as a safety-and-soundness (or "prudential") regulatory regime. There are four major categories of financial intermediary to which such regimes apply: depositories, such as banks, savings institutions (thrifts), and credit unions; insurance companies; defined-benefit pension funds (i.e., the "traditional" company-funded pension

arrangements); and the GSEs. Money market mutual funds (MMMFs) are, arguably, a fifth category; but the safety regime that has been applied to MMMFs (a requirement that most of their investments be in comparatively safe short-term debt obligations) is far less extensive than those that apply to the other three categories.

The goal of the four main prudential regimes is to keep the regulated financial institution solvent, so that it can meet its obligations to its creditors: the depositors, insureds, pension claimants, and GSE creditors. The reasons for singling out these categories of financial institution for this special treatment are threefold. First, for all but the GSEs, their creditors (i.e., depositors, insurance claimants, and pension claimants) are probably in a poor position to be able to protect themselves against the failures of these institutions, which could then mean substantial hardships in the event of failures. It is no accident that these types of institutions all have government-operated insurance funds (federal deposit insurance, state guarantee funds for insureds, and federal pension guarantees)[20] as a backup in the event that prudential regulation fails to prevent insolvencies.[21] Second, especially for banks and other depository institutions, depositors' fears of failures could lead to runs on institutions and a consequent contagion or cascade of failures.[22] Third, for the GSEs, the implicit government guarantee of their debt obligations that has accompanied their special hybrid public-private status has caused government to want to limit its exposure.

Safety as applied to retail customers encompasses the prudential regulatory regimes just

[20] And MMMFs acquired a Federal Reserve guarantee on existing MMMF shares in September 2008, as a consequence of a widespread run on MMMFs that developed after one large MMMF (the Reserve Fund) "broke the buck" and told its shareholders that they would receive only 97 cents for every share instead of the $1.00 "par" value that MMMF shareholders had come to expect. The Reserve Fund's actions, in turn, occurred because it held a sizable amount of Lehman Brothers' commercial paper, which became worthless after Lehman declared bankruptcy on September 15.

[21] In the presence of these kinds of government insurance and guarantee arrangements, prudential regulation can be interpreted also as the equivalent of the set of rules that insurance companies always establish to protect themselves against problems of adverse selection and moral hazard.

[22] One of the lessons of the financial crisis has been that other large financial institutions, such as investment banks, had issued large amounts of short-term obligations (commercial paper) that could be subject to similar runs. And, as was noted above, MMMFs are subject to runs.

discussed but also encompasses requirements that financial institutions provide specified types of information (e.g., about interest rates and extra fees on loans), often in a standardized format so as to enhance comparisons; limits on prices and fees (e.g., "usury" limits on interest rates on loans; limits on credit card fees); and outright bans on sufficiently "dangerous" products and services, such as "payday" loans or other "predatory" loan products with obviously onerous terms. Further, consumer safety is the justification for licensing and qualification requirements for some categories of financial facilitators, as well as the notion of "fiduciary obligation" on the part of some financial agents.

The third broad category of regulation is information regulation, whereby firms are required to provide standardized information on their products (similar to the "nutrition facts" labels on canned and packaged foods), so as to help deal with asymmetric information problems. As was discussed above, financial firms are required to provide standardized interest rates and fee information for credit cards and other kinds of loans; and all publicly traded companies are required to provide certified (by an auditing firm) financial statements to shareholders in a standardized format ("generally acceptable accounting principles", or GAAP).

This broad categorization is not airtight nor are individual instances of regulation always capable of being pigeonholed exclusively into one category of regulation or another. Nevertheless, this categorization does provide some coherence to what otherwise might look like an undifferentiated mass ("financial regulation") of intervention.

## III. The Special Place of Housing Policy

### A. An Overview.

American government policies, at all levels of government, encourage the construction and consumption of housing. These policies include:

- Income tax deductions and exemptions for home owners;

- Subsidies for renters;

- Tax breaks for housing construction;

- Explicit subsidies for mortgage finance, through the Federal Housing Administration (FHA), the Department of Veterans Affairs (VA), and the Government National Mortgage Association (Ginnie Mae), as well as through some states' mortgage finance subsidy programs;

- Implicit subsidies through the "government sponsored enterprises" (GSEs): the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac), and the Federal Home Loan Bank System (FHLBS); and

- Direct provision of rental housing ("public housing").

"Too much is never enough" is a not unreasonable characterization of U.S. housing policy.

The motives for this encouragement of housing are, as is true of much public policy, a murky mixture. Partly the encouragement of housing is seen as a way of redistributing income through in-kind transfers. Partly it is seen as a sop to the housing construction industry and its vertically related (upstream and downstream) complementary partners, including the employment that is generated directly and indirectly from housing construction. And partly it seen as an encouragement for households to become home owners.[23]

In turn, the encouragement for home ownership has at least four underlying motivations: First, it is simply seen as part of "The American Dream". Second, since housing prices in most parts

[23] The national home ownership rate – the percentage of U.S. households that own their own homes – has become a politically important statistic.

of the U.S. had tended (over most time periods) to trend upward since the 1940s, housing investment was seen as a good way of building household wealth (and on a leveraged basis, as well, since a 20% down payment meant that the house purchase was leveraged five-to-one). Third, it is a way to internalize the agent-principal problems that otherwise arise between landlords and tenants. And it is a means of exploiting the positive social externality that appears to accompany home ownership.

On this last point, the theory that argued that there should be positive social externalities from home ownership -- that a homeowner is more likely to care about his/her community than is a renter, more likely to participate in community activities, etc. -- has been around for decades. But only since the middle 1990s has a small but growing body of empirical studies provided support for this notion.

An important caveat should immediately be added to these positive motivations for home ownership: Home ownership is not for everyone. It is a large, illiquid asset, which can impede labor mobility across geographic regions. It requires a relatively steady income stream and requires disciplined budgeting. And, as millions of households (and their lenders) have discovered to their regret over the past three years, housing prices do not always increase.[24]

Further, a sensible and efficient approach to addressing the social externality would be to have a modest and focused program that is aimed at the likely margin for action: modest subsidies (e.g., for down payments and/or monthly payments) for low- and moderate-income households so as to encourage them to become first-time home owners. Unfortunately, with only minor exceptions,[25] housing encouragement instead is broadbrush in scope. The most extensive subsidy, for example, is the income tax deduction for mortgage interest and capital gains exclusion on the sale of a household's principal residence.

[24] Also, of course, rental subsidies run counter to the goal of encouraging households to become homeowners.

[25] One exception is the American Dream Downpayment Assistance Act of 2003, which instructs the Department of Housing and Urban Development (HUD) to provide down payment assistance to low- and moderate-income families. However, the appropriations for HUD's administration of this program have been relatively modest.

Such broadbrush subsidies tend to encourage households who would be homeowners anyway simply to purchase larger and better appointed houses on larger lots. Further, the main beneficiaries are higher income households who would be more likely to itemize their deductions (and thus be able to take advantage of the interest deduction) and who would tend to have larger capital gains to shield. The implicit subsidy on mortgage interest provided through the GSEs operates through the same broadbrush path (and also subsidizes the purchase of second homes and rental housing), with the same broad encouragement of larger amounts of housing on larger lots. It is hard to see the social benefit that accrues from encouraging upper income households, who would likely purchase homes anyway, to buy larger quantities of housing on larger lots and/or to buy second homes.

Indeed, the research of the past quarter century indicates that U.S. housing policies have distorted consumption and investment choices, causing an inefficiently large fraction of U.S. investment to be devoted to housing (and correspondingly less devoted to other productive physical capital, as well as human capital).

B. Fannie Mae and Freddie Mac.[26]

Until their government takeover in September 2008, Fannie Mae and Freddie Mac were two large, hybrid (private-public) companies that dominated the secondary residential mortgage markets. They engaged in two lines of business: securitizing mortgages that generally conformed to high lending standards, with the mortgage-backed securities (MBS) carrying their guarantees if the mortgage borrower failed to repay; and investing in similar mortgages, funded overwhelmingly (around 96%) with debt.

Though they were publicly traded companies with shares listed on the New York Stock Exchange, the two companies were also creatures of Congress that had special governmental ties

[26] Further discussion of these two companies can be found in Frame and White (2005) and White (2003, 2008).

and advantages, as well as limitations (e.g., they were restricted to secondary mortgage markets, there was a ceiling on the size of mortgage that they could buy or securitize, and they were subject to prudential regulation) and obligations (they were expected to make a special effort to support lending to lower-income households -- an obligation that became more burdensome in 2003). Within the past few years the term "government-sponsored enterprise" came into common use to describe the two companies (as well as the Federal Home Loan Bank System, a wholesale bank for banks and thrifts that similarly enjoys special privileges and limitations).

As a consequence, the financial markets believed (correctly, as it turned out) that if Fannie or Freddie were ever in financial difficulties, the federal government would likely keep their creditors whole.

This belief in the federal government's "implicit guarantee" meant that Fannie and Freddie were able to borrow in the bond markets (in normal times) at about 0.35-0.40 percentage points less (i.e., at lower interest rates) than their financial condition would otherwise have justified. In turn, they caused interest rates for the mortgages that they could securitize or hold to be about 0.20-0.25 percentage points lower than otherwise would have been the case.

Both Fannie and Freddie grew rapidly in the 1990s and in the early years of this decade. Accounting scandals at Freddie in 2003 and at Fannie in 2004 caused their growth to slacken, especially for the mortgages that they held in their portfolios. Nevertheless, at year-end 2007 their holdings of mortgages and their outstanding mortgage-backed securities (which carried their guarantees) together totaled about $5 trillion, or over 40% of the total residential mortgage market.

It is easy to understand the political popularity of their hybrid structure, since it looked like they were providing a free lunch: lower interest rates on mortgages, some efforts to expand lending to lower-income households, and no explicit cost to the federal government. The way that these outcomes were reconciled with adequate returns to shareholders was through low capital requirements (only 2.5% for holding a mortgage in portfolio; only 0.45% to support the guarantees

on their MBS) and thus high leverage, as well as an expansion into higher-risk mortgages around 2005.

Although Fannie and Freddie were not at the center of the subprime debacle, their portfolios and MBS did become more risky in the middle of this decade, as they expanded into "Alt-A" (between prime and subprime) mortgages. Further, as housing prices fell steeply in some areas like Las Vegas, parts of California, Arizona, and south Florida, even some "prime" mortgages (i.e., those where the borrower made a 20% down payment, had an adequate income, and had a good credit score) yielded borrower defaults and losses. Other apparently good mortgages, where private mortgage insurance was covering shortfalls in borrowers' down payments, came into doubt because of rising questions about the solvency of the mortgage insurers and thus their ability to make good on their obligations. And Fannie and Freddie were also burned on investments (intended to help satisfy those distributional requirements) in supposedly safe tranches of mortgage-based securities that had lower-quality mortgages as their underlying collateral.

At the end of the day, however, it was inadequate capital for the overall risks in their portfolios and their MBS that did them in. The free lunch turned out to be a costly meal indeed. As of early 2009, the U.S. Treasury had set aside $400 billion to cover the possible losses of the two companies.[27]

C. The Community Reinvestment Act.[28]

The Community Reinvestment Act (CRA) of 1977 requires that commercial banks and savings institutions "to help meet the credit needs of the local communities in which they are

[27] In the current shaky environment, Fannie and Freddie should remain as wards of the government. But the hybrid model is clearly too fraught with problems. After the financial markets have stabilized, the two companies should be fully and truly privatized, with no remaining special ties to the federal government -- but also no special burdens or restrictions on their activities, except for those that would be part of their inclusion in the special prudential regulatory regime discussed above. The privatization of the Federal Home Loan Bank System should similarly occur, for similar reasons.

[28] Further discussion can be found in White (2009b).

chartered." Although the Act encompasses a range of financial services (to be provided by banks and thrifts) that is far broader than housing finance, the CRA has recently been implicated by some critics as playing a major role in the expansion of the subprime lending that subsequently went sour and thus as bearing a major responsibility for the subprime debacle.

The CRA has many flaws.[29] But responsibility for the subprime mortgage lending and securities debacle does not appear to be one of them. It appears that the bulk of the subprime lending of the earlier years of this decade was made by non-bank lenders – i.e., by mortgage "banks" that either securitized the mortgages themselves or that quickly sold the mortgages to securitizers. These non-bank lenders were not covered by CRA requirements. Further, the major financial difficulties that were related to investments in these mortgage securities were experienced mostly by investment banks (such as Bear Stearns, Lehman, Morgan Stanley, and Merrill Lynch) and by a large insurance conglomerate (AIG) – none of which were covered by the CRA. Where banks did experience difficulties that were related to subprime mortgages – such as CitiBank, Washington Mutual (WaMu), Wachovia (having absorbed Golden West in 2006), IndyMac, and Countrywide – it appears that they were heavily involved in subprime lending because of its perceived profitability (and their under-appreciation of the risks) and not because of CRA pressures.[30]

[29] The Act is a regulatory effort to "lean on" banks and savings institutions, in vague and subjective ways, to make loans and investments that (the CRA's proponents believe) those depository institutions would otherwise not make. It is a continued effort to preserve old structures in the face of a modernizing financial economy. At base, the CRA is an anachronistic and protectionist effort to force artificially a local focus for finance in an increasingly competitive, increasingly electronic, and ever-widening realm of financial services. Further, ironically, the burdens of the CRA may well discourage banks from setting up new locations in low-income neighborhoods and thus providing local residents with better-priced alternatives to high-cost check-cashing and payday lending establishments. It should be replaced with explicit, on-budget subsidies to provide the community financing and development that are the goals of the Act's proponents. Greater details can be found in White (2009b).

[30] An empirically based, quantitative evaluation of the role of CRA in subprime lending – which similarly finds that the CRA did not play a role in the debacle – can be found in Laderman and Reid (2009).

## IV. Financial Regulation versus Competition: A Selective History

The regulation of financial institutions in the U.S. has a long history, going back at least as far as the late eighteenth century. A complete history is not possible in this paper. Instead, a competition perspective on some major historical landmarks in financial regulation will be offered.

### A. Banking Regulation.

#### 1. Before the 1930s.

From the late eighteenth century until the 1860s, banking was almost entirely a state-focused and state-regulated industry.[31] Entrepreneurs who wanted to open a bank needed a charter from the state in which the bank was located, and the charters were usually restrictive in terms of the activities that the bank could undertake – an early indication that banks were special. Some states gave out charters relatively freely; others were more restrictive. Some states allowed unlimited branching; others restricted branching.[32] Some states had usury limits on the interest that could be charged on loans; others did not.

One important consequence of this state-centered regulation was that branching across state lines was not possible.[33] More generally, since (because of the problems of asymmetric information) location was destiny for banks, branching limitations (whether interstate or intra-state) meant that banks could not readily expand to compete with banks in other areas. In an important sense, these branching restrictions were an expression of American populism's fear of the economic and political

[31] The exceptions were the First Bank of the United States (1791-1811) and the Second Bank of the United States (1816-1836), which operated somewhat like rudimentary central banks.

[32] At the extremes, some states (such as California) allowed a bank to have unlimited branching throughout the state, while other ("unit banking") states (notably Illinois and Texas, but other Midwest states as well) restricted individual banks to a single physical location. In between, some states allowed a bank to branch only within the county where it had its home office (i.e., headquarters), or only within that county and adjacent counties, or only into counties where another bank did not have its home office. As late as the mid 1970s, for example, New York allowed its large banks that were headquartered in New York City to establish branches only in the five boroughs of the city, the two counties of Long Island, and Westchester county; expansion farther upstate was off limits.

[33] It was possible, however, for a holding company to own separately chartered banks in two or more states.

power of large financial institutions. Many Americans seemed to prefer their banks small, with lots of them.

In 1863 the Congress authorized national charters for commercial banks, and created the Office of the Comptroller of the Currency (OCC) for their prudential regulation. In many respects, however, even these nationally chartered banks were subject to the state regulations of the state in which they were headquartered. Until 1927, national banks were restricted to a single location, regardless of the state in which they were headquartered; legislation in 1927 permitted city-wide branching for national banks – but only in states where state-chartered banks were permitted to branch at least city-wide.

Prior to the 1930s, state-chartered commercial banks could and did engage in securities activities. Whether national banks could also do so was ambiguous, until legislation in 1927 specifically authorized securities activities for national banks as well.

Finally, it is worth noting that, prior to the 1930s, both the states and the OCC were relatively free and open with respect to the chartering of new commercial banks. As of 1928, there were over 25,000 banks in operation in the U.S.

2. The 1930s through the 1960s.

The stock market crash of 1929-1933 was accompanied not only be a steep economic decline into the great Depression but also by the failures of over 9,000 banks. Thousands of savings institutions failed as well.

A major component of the general economic reforms that were enacted in the 1930s involved changes in bank regulation. The Congress was convinced that excessive competition among banks had caused them to pay excessively high rates on deposits and to make excessively risky loans, which had led to those thousands of bank failures. Consequently, in addition to mandating tighter prudential regulatory standards and creating the Federal Deposit Insurance Corporation (FDIC), the Banking Acts of 1933 and 1935 insisted that entry by new banks be

allowed only if the "convenience and needs of the community" weren't already being served by the existing banks.[34] In the same spirit, the Congress banned the payment of interest on checking accounts and instructed the Federal Reserve to set ceilings on the interest that could be paid on other types of deposits. (The Fed's rules subsequently came to be called "Regulation Q".) In separate legislation the Congress created a national charter and regulatory system for mortgage-oriented savings institutions (savings and loan associations, or S&Ls), and a separate deposit insurance system for them, but with similar entry restrictions as were placed on commercial banks. However, Regulation Q was not applied to savings institutions at the time (but eventually did apply, starting in 1966).

Further, the Congress was also convinced that there were severe conflicts of interest between the lending operations of a bank and its securities activities, and that these conflicts had contributed to the stock market crash and to bank failures.[35] Consequently, as part of the Banking Act of 1933, the Congress inserted four sections, which subsequently became known as the Glass-Steagall Act, that mandated that investment banking (i.e., securities activities) be separated from commercial banking, with no common ownership allowed, whether in the banks themselves or in the affiliates or holding companies of banks.[36] The Glass-Steagall Act was not applied to S&Ls, however.

Prudential regulation by both the states and the federal government generally restricted banks to financial activities (and the Glass-Steagall Act meant even greater restrictions). But the owners of commercial banks – including holding companies -- were largely unrestricted (except for the Glass-Steagall prohibitions) in their activities. Reflecting the Congress's belief that a bank might unduly favor a commercial affiliate and thereby provide a competitive advantage to that affiliate, the Bank Holding Company Act (BHCA) of 1956 restricted holding companies that owned two or more

[34] These restrictions on entry were in addition to the restrictions that would sensibly accompany prudential regulation: that an entrant have adequate capital, competent management, and a sensible business plan.
[35] For a refutation, see Benston (1990).
[36] As an indication of the strength of the Congress's sentiments on this point, the Glass-Steagall Act did not permit any "grandfathering" of the existing arrangements.

banks to activities that were closely related to banking and a proper incident thereto.[37] Such holding companies were also prevented from owning banks in two or more states (but existing multi-state bank holding companies were "grandfathered" and not required to dissolve). In 1970 the BHCA's restrictions on commercial activities were extended to holding companies that controlled a single bank. The 1970 legislation also made tying of products or services by banks illegal, but the language of the legislation was harsher than that of the Clayton Act, since there was none of the latter Act's language of "where the effect… may be to substantially lessen competition or tend to create a monopoly…"

As of the early 1970s, then, there were substantial features of bank regulation that were clearly anti-competitive: Bank regulators restricted entry; all states restricted interstate branching, and many states restricted intra-state branching. Regulation Q inhibited price competition with respect to deposits offered by banks and (as of 1966) thrifts. The Glass-Steagall Act prohibited banks and their holding companies from entering investment banking (and equally prevented investment banks from entering commercial banking); the BHCA prevented bank holding companies from engaging in activities that were not closely related to banking (and equally prevented commercial or industrial companies, and even insurance companies, from owning a bank.

3. Procompetitive policies since the early 1970s.

Consistent with the general trend in the U.S. toward deregulation and a greater emphasis on competition in markets that began in the 1970s, bank regulation also moved in the direction of fewer restrictions on entry and competition. First, in the 1970s bank and thrift regulators eased their non-prudential restrictions on de novo entry; in essence, they interpreted a potential entrant's willingness to enter as an indication that the "convenience and needs of the community" weren't being satisfied by the incumbents. Second, in the mid 1970s, some states began allowing wider ranges of intrastate branching; and in the late 1970s, several states began signing compacts among themselves that

[37] For example, insurance was not considered to be closely related to banking.

permitted interstate branching. These compacts progressively grew in number and scope during the 1980s. Eventually, in 1994 the Riegel-Neal Act effectively permitted unlimited interstate branching, although the Act set a ceiling of 10% of the total of national deposits as the limit on the deposit size of a merging bank. Third, restrictions on the ability of S&Ls to expand their investments beyond residential mortgages and to be able to make adjustable-rate mortgages were loosened in the late 1970s and early 1980s.

Fourth, in the early 1980s Regulation Q was repealed and phased out, although a vestige remains in place today: the prohibition on banks' paying interest on business checking accounts. Fifth, starting in the 1970s the Federal Reserve gradually allowed commercial banks to enter various parts of the securities business (such as offering discount brokerage service, offering mutual funds, and doing limited amounts of securities underwriting). Finally, in 1999 the Gramm-Leach-Bliley Act erased the Glass-Steagall prohibitions on bank holding companies engaging in investment banking activities and the BHCA's prohibitions on holding companies' engaging in insurance.[38]

An important restraint remains, however: the BHCA's limits on what bank holding companies can do and, concomitantly, what kinds of companies can own a bank. These restrictions were highlighted in 2005, when Wal-Mart made an effort (as a few other non-financial firms had earlier succeeded in doing) to enter banking by obtaining a charter for an industrial loan company – a type of bank chartered in Utah – but was stymied by the FDIC's refusal to grant deposit insurance.

B. Insurance Regulation.

From the middle of the nineteenth century onward, the regulation of the insurance industry has been the province of the states. The Supreme Court affirmed the states' role in Paul v. Virginia,

[38] In the wake of the subprime lending debacle, there have been many claims that the repeal of the Glass-Steagall barrier between commercial banking and investment banking was somehow responsible for the debacle. There is neither evidence nor logic to support these claims. A continuation of the Glass-Steagall barrier would not have inhibited the packaging of the subprime mortgages into securities, and it would not have inhibited commercial banks and investment banks from investing in those securities.

75 U.S. 169 (1868). Seventy-six years later, in the context of a Sherman Act Section 1 conspiracy case against a group of fire insurance companies in Missouri, the Supreme Court seemed to reverse itself in U.S. v. South-Eastern Underwriters Association, 322 U.S. 533 (1944), by deciding that insurance was interstate commerce and was subject to federal regulation -- such as antitrust. The Congress promptly passed the McCarran-Ferguson Act of 1945, which declared that the business of insurance was the subject of state law, unless the Congress subsequently decided otherwise – which it has not. The Act also effectively exempted the business of insurance from federal antitrust jurisdiction.

State regulation of insurance has been a mixture of prudential regulation (i.e., efforts to maintain the solvency of insurance companies through minimum capital requirements, limits on risky investments, etc.); information regulation; safety regulation (i.e., preventing some insurance products from being offered and insisting on certain coverages in other products – e.g., in health insurance policies); and, especially for some lines of property-casualty insurance (e.g., auto insurance; home owner's insurance) maximum price regulation.

In terms of an antitrust or competition concern, some states have authorized collective rate filings for some lines of property-casualty insurance (e.g., title insurance).

C. Securities Regulation.

Securities regulation primarily involves information regulation: disclosure. However, the SEC's jurisdiction also extends to the operations of securities exchanges and securities trading. In this regard, the major triumph of a pro-competitive stance was the pressures of the Antitrust Division of the U.S. Department of Justice (DOJ) on the SEC and on the New York Stock Exchange (NYSE) in the late 1960s and early 1970s – ultimately successful – to eliminate the NYSE's system of fixed stock brokerage commissions.[39]

[39] Greater detail can be found in White (2007) and the sources cited there.

Prior to December 1968, the stock brokerage commissions for buying and selling shares of stocks that were traded on the NYSE were uniform across all members of the NYSE. Those commissions were set collectively by the members of the NYSE, with automatic approval for any changes by the SEC. The commissions were fixed at a dollar amount per "round lot" (100 shares), with no "quantity discounts" for trades that were in multiples of round lots, despite the obvious economies of scale that were involved in handling larger trades. As the trading volumes by institutional investors (i.e., mutual funds, pension funds, insurance companies, and bank trust departments) grew in the 1960s, these institutions increasingly chafed under the cost burdens imposed by the rigidly proportional fixed commission rate structure. In addition to efforts to evade the rigid structure, the institutions complained to the SEC. Their complaints were supported by the DOJ, which hinted at the possibility of antitrust suits.

The SEC held hearings in 1968 on the fixed commission system; and in December 1968 the SEC – over the NYSE's objections – required that a set of volume discounts be added to the NYSE's rate schedule. In the early 1970s the SEC required that commissions be subject to increasing degrees of competition; and, finally, on May 1, 1975, all brokerage commissions were required to be negotiated with customers; i.e., the jointly determined fixed commissions were wholly abolished, and competition in commissions prevailed.

The end to the fixed commission system meant not only lower prices for the standard, full-service brokerage transaction, but it also allowed brokerage firms to offer a wider range and variety of services, including the development of discount brokerage services, that had not been possible under the fixed commission system.

D. The Credit Rating Agencies.

Because the credit rating agencies were central parties in the subprime lending debacle, and the anticompetitive regulatory structure that surrounded them for over 30 years is not well known

and understood, and the regulatory reasons for why they were central parties in the subprime debacle are also little known or understood, an explication of this regulatory morass is worthwhile.[40]

Rating agencies offer judgments – "opinions" is the word that they prefer[41] -- about the creditworthiness of bonds that have been issued by various kinds of entities: corporations, governments, and (most recently) the packagers of mortgages and other forms of debt. Those judgments come in the form of "ratings", which are usually a letter grade. The best-known scale is that used by Standard & Poor's and some other rating agencies: AAA; AA; A; BBB; BB; and so on (with pluses and minuses, as well). These ratings can be used by bond investors to help them determine the riskiness of the bonds that they might buy and the risk premiums that they should require.

The three major rating agencies in the U.S. – Moody's, S&P, and Fitch -- clearly played a significant enabling role in the subprime lending debacle. Absent their excessively optimistic ratings on the increasingly poor quality mortgage-related securities in 2005 and 2006, the housing boom would have ended sooner, and the collapse would have been less severe. Further, it is clear that their basic business model, in which they charge the securities issuers fees for the rating, didn't help matters.[42]

Credit rating agencies have never been the only source of information about bonds. So, why

[40] More information on the credit rating industry and its regulation can be found in Cantor and Packer (1995), Partnoy (1998), Sylla (2002), White (2002, 2009d), and Richardson and White (2009).

[41] They thereby try to wrap themselves in the First Amendment – thus far, largely successfully – when challenged in lawsuits by disgruntled investors who claimed that they were misled by ratings or by disgruntled issuers who claimed that they have been unfairly rated too low.

[42] The original business model for rating agencies, started in 1909 by John Moody, was an "investor pays" model: Moody and successor firms (Poor's, the Standard Statistics Company [which merged with Poor's in 1941], and Fitch) sold ratings to investors in thick rating manuals. In the early 1970s, the industry's business model changed to an "issuer pays" model. The reasons for this change have never been established definitively. Among the candidates: (a) The high-speed photocopy machine, which was gaining widespread use, opened the prospect of free-riding among investors; (b) The bankruptcy of the Penn-Central Railroad in 1970 clearly shocked the bond markets and made bond issuers more willing to pay to be able to clarify the safety with investors (but why weren't investors more willing to pay to learn about safe bonds?); (c) The industry may have belatedly realized that the issuers needed their ratings, for the reasons that are discussed in the text below; and (d) In two-sided information markets (newspapers and magazines are another example), the question of which side pays is idiosyncratic.

were they so central to the bond markets and especially to the securitization process? An historical perspective is necessary:

For decades financial regulators -- bank regulators, insurance regulators, pension fund regulators, and the SEC -- have been requiring that their regulated entities heed the ratings of a select few rating agencies. For example, since the 1930s banks have not been allowed to invest in bonds that are below "investment grade" (which, for example, is BBB- or better on the S&P scale) -- as determined by the select few rating agencies. Although the goal of having safe bonds in the portfolios of banks (as part of prudential regulation) was (and remains) a worthy one, the bank regulators essentially delegated (or outsourced) their safety judgments to the rating agencies. Equivalently, the safety judgments of these third-party rating agencies acquired the force of law.

When the SEC in 1975 decided to delegate its safety judgments with respect to broker-dealers, it wanted to ensure that the delegations weren't made to bogus agencies. It therefore created the category "nationally recognized statistical rating organization" (NRSRO) and immediately "grandfathered" into the category the three large rating agencies. Other financial regulators soon adopted the NRSRO category for their delegations.

Over the next 25 years, the SEC allowed only four more rating firms to achieve the NRSRO designation; but mergers among the entrants and with Fitch reduced the number of NRSROs back to three by year-end 2000. The SEC never developed criteria for the designation and handled the entire designation process in a remarkably opaque fashion. And, once designated, a NRSRO was never again scrutinized by the SEC for competence or accuracy.

As a practical matter, the SEC had created a substantial barrier to entry into the rating business (since only the NRSROs' ratings mattered for the bond investment decisions of regulated financial institutions). It shouldn't be a surprise that the protected rating industry incumbents -- whose importance for bond markets was greatly magnified by all of those safety delegations by financial regulators -- might grow sluggish and careless. Also, although the issuer-pays business

model had not created major problems when the agencies were primarily rating corporate and municipal bonds from thousands of issuers, the model proved more problematic when there were only a handful of investment banks that were bringing most of the mortgage-related securities to the agencies for ratings.

Although the SEC has designated seven additional NRSROs since 2000,[43] and legislation passed in 2006 required that the SEC cease being a barrier to entry and gave it limited regulatory powers over the NRSROs, the pattern that had been established in the earlier decades has had lasting consequences: When the securitization of subprime mortgages took off early in this decade, the Big Three rating agencies were the only ones to whom the securities packagers could bring the securities, so as to obtain the ratings that were required to place the securities in the portfolios of regulated financial institutions.

[43] One in 2003; one in 2005; three in 2007; and two in 2008.

## V. The Debacle, the Crisis, and Too-Big-to-Fail

### A. The Debacle, and the Crisis.

Since the subprime lending debacle of 2007-2008 is what got us here, it is worth reviewing what went wrong: A 10-year national housing bubble expanded dramatically, and then popped just as dramatically. That bubble was inflated by progressively looser lending standards, allowing increasingly inappropriate households to borrow increasingly excessive amounts of money on residential mortgages that couldn't be repaid. These mortgages were often bundled/packaged into securities that were blessed with high ratings by rating agencies and sold to insufficiently cautious investors; in some instances the securities became the collateral for yet further rounds of securities that again were blessed and sold. The Federal Reserve's fears of deflation and a consequent monetary policy that was too easy for too long in the first half of this decade added fuel to this fire.

Much of this loose lending happened because the participants -- from the borrower to the mortgage broker (who made the match between the borrower and the initial lender/originator) to the initial lender/originator to the securities packager to the rating agency that rated the securities to the investor who bought the securities -- were collectively "drinking the Kool-Aid" of "housing prices can only increase". If housing prices would always increase, then even otherwise inappropriate mortgages would not be a problem, because the borrower could always refinance the mortgage or repay by selling the house at a profit. Further, the parties that acting as agents between the borrower and the investor could all earn handsome fees from the transactions and could comfort themselves with, "These mortgages won't be a problem because housing prices will always increase -- but even if some mortgages do become a problem, they will be somebody else's problem," and then pocket the money and move on to the next transaction (which, of course, is the problem of moral hazard).

This is not the whole story. On the borrowing end, there were clearly some instances of fraud -- sometimes committed by the borrower with the connivance of mortgage broker and/or the lender; and sometimes committed by the mortgage broker in inducing unwitting households to sign

and commit to obligations that were patently beyond their capabilities. But fraud (which ought to be prosecuted vigorously when discovered) was only a modest part of the story.

On the lending and investing end, mortgage finance was occurring in the context of an even wider under-recognition of risk. Normally cautious banks were making loans to highly leveraged private equity firms and not insisting on the tight controls that would have been commonplace a few years earlier. Similarly, cautious bond investors, who earlier had been requiring that high-risk "junk bonds" pay interest rates that were 5-6 percentage points above Treasury bonds of the same maturity were apparently satisfied with interest rates that were only 3-4 percentage points above Treasuries.

In sum, the combination of a housing boom and a surprising disregard for risk by lenders and investors conspired to create an environment where slipshod practices by "middlemen" remained profitable for too long. When housing prices ceased to rise -- as had to happen sooner or later -- the house of cards collapsed. When subprime borrowers couldn't refinance, they defaulted, the mortgage securities fell in value, and the mortgage finance system imploded, dragging much of the rest of the financial sector down with it because of the relatively low capital levels and concomitant high leverage of most of the institutions in the financial sector, some of which -- including some very large institutions -- owned significant slugs of these toxic mortgages and mortgage-related securities. (Readers are again urged to consult the appendix for help in understanding the concepts of "capital" and "leverage".)

By now the major pieces of this story are understood, although why so many participants continued to believe for so long that housing prices could only go up and why so many lenders and bond investors disregarded the standard precautionary actions of those who should be worrying about whether they will be repaid are puzzles that are better tackled by psychologists than by economists.

The importance of leverage in explaining why the losses of the subprime debacle were transmitted to and brought down the U.S. financial sector is worth emphasizing. This importance is

best illustrated by a comparison of the effects of the collapse of the "dot.com" bubble and the collapse of the housing bubble:

Between year-end 1999 and year-end 2002, the value of all shares of stock traded on U.S. exchanges declined by about $7.5 trillion.[44] Although this decline in national wealth was painful, and contributed to the 2001-2002 recession, it did not rip apart the U.S. financial sector.

At the height of the housing bubble (mid-year 2006), the aggregate value of the stock of U.S. housing was about $22 trillion. Housing prices have fallen since then by about 20-25% nationally, and a reasonable estimate is that the overall fall will be about 35% by the time that the housing market stabilizes. That 35% decline, multiplied by $22 trillion, implies a decline in wealth of $7.7 trillion. Most of that decline will be absorbed by homeowners, who will be less wealthy than they thought they were in mid 2006. But about $1-1.5 trillion of the loss will be transferred to the financial sector, via defaults on mortgages. The anticipation of these latter losses has ripped apart the U.S. financial sector.[45]

Why did the earlier $7.5 trillion of stock market losses not decimate the U.S. financial sector, whereas the more recent mortgage losses that are only a fifth to a sixth as large have required massive federal intervention? The difference is leverage. Most of the earlier losses were absorbed by U.S. households in direct holdings of shares, in mutual funds, and in pension funds – all of them unleveraged. By contrast, the later losses are hitting the highly leveraged financial sector, where too many (and, especially, large) institutions have had too little capital to be able to absorb these losses without federal intervention.

Federal efforts to deal with the problems of the large and troubled financial institutions have confronted the issue of TBTF. It is to that issue that we now turn.

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[44] From $19.4 trillion to $12.4 trillion; these data are taken from the Federal Reserve's "Flow of Funds" data base.

[45] The serious recession into which the U.S. economy has slipped, starting in December 2007, has meant that losses on other types of loans will also be incurred by banks and other lenders; nevertheless, it is clear that it was the anticipation of the losses on subprime mortgages and mortgage-related securities that led to the initial crisis for the U.S. financial sector.

B. Too-Big-To-Fail.[46]

The construct of TBTF is best understood by first illustrating what the failure of a not-too-big-to-fail bank looks like:

1. The failure of a small bank.

Figure A3 in the Appendix portrays in stylized form the balance sheet of an insolvent bank. Its assets – primarily loans – are inadequate to cover its fixed liabilities – primarily deposits.[47] Insolvency is the major grounds for bank regulators to declare that the bank is in an unsafe and unsound condition and thus to declare a receivership for the bank, with the FDIC appointed as receiver.[48] With the receivership, the FDIC takes control of the bank. The shareholder owners are washed away (after all, their equity stake is now negative), and senior management is almost always removed (after all, they are the managers who drove the bank into the ditch).

Because the depositors have been insured by the FDIC, the FDIC now has obligations of $92 but has only $80 (expected value) of assets that it has acquired as receiver. It will have to "fill the hole" of $-12, in one way or another. The usual method of "resolving" the insolvent bank is to find an acquirer for the bank.[49] Since the bank has a negative net worth of $-12, the FDIC will have to pay the acquirer: add cash of (approximately) $12 to the bank's assets, in order to provide a balanced institution to the acquirer (which will then be expected to inject its own capital into the acquired bank, so as to achieve appropriate capital levels for a healthy bank). This is the type of transaction that the FDIC strongly prefers, since it usually minimizes the FDIC's costs[50] and minimizes

[46] This section will address the concept of TBTF for financial institutions. With respect to other large enterprises, such as automobile companies, the driving force appears to be political fears of the immediate unemployment and disruptions to related enterprises in the event of the closure of the large enterprise.

[47] To simplify the discussion that follows, I will initially assume that all of the fixed liabilities are deposits and that all of the deposits are insured by the FDIC.

[48] This typically happens on a Friday evening, after the close of business.

[49] Often in the week or two prior to the declaration of the receivership, the FDIC will "shop" the target bank around to potential acquirers.

[50] By transferring the whole bank, any brand name recognition/going concern value for the bank that may still exist

disruptions to the bank's customers.

If the FDIC cannot find an acquirer for the whole bank, then it will try to find an acquirer for the deposits and some of the assets (with the FDIC providing a larger upfront cash payment to the acquirer and then liquidating whatever assets the acquirer has refused to take).[51] At the extreme, the FDIC might not be able to find an acquiring bank. It could then operate the bank itself, in the hopes that with more time an acquirer could be found.[52] Or it can liquidate the bank: pay off the depositors (typically mailing out checks on the next business day after the receivership was declared), and liquidate the assets.[53]

2. The failure of a large bank.

What potential complications arise when a large bank failure is imminent? We can stay with the stylized balance sheet of Figure A3 (but remember that more zeroes are at stake than was the case for the small bank).

The first complication arises because a larger fraction of the fixed liabilities of a large bank are likely to be uninsured obligations – either deposits that are in excess of the amount insured by the FDIC,[54] or other kinds of obligations (bonds, notes, commercial paper, etc.) that are uninsured.[55] Table 2 shows that deposits as a percentage of assets fall as average bank size increases. Table 3 extends that comparison by showing that the percentage of a bank's deposits that are covered by

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is preserved; this has value for the acquiring bank, which may thereby be willing to accept a bit less than $12 from the FDIC as the "hole filling" payment. Also, by transferring the whole bank the FDIC avoids the costs of liquidating the assets and of mailing checks to depositors.

[51] The acquirer might refuse to take some of the assets (and prefer cash from the FDIC instead) because of the acquirer's uncertainties about the true value of the assets. At the limit, the acquirer might prefer all cash from the FDIC to balance the deposit liabilities that the acquirer is absorbing.

[52] The FDIC did this in the case of the IndyMac receivership in 2008.

[53] During the S&L debacle of the late 1980s and early 1990s, such liquidations were rare, with whole bank or partial bank transfers to acquirers being far more common. Despite the fact that owners were washed away and senior managers were removed, the term "bailout" came to be commonly used to describe such transactions – apparently because the bank was still operating (albeit, under different ownership and management).

[54] From 1980 until the summer of 2008 the insured deposit amount at a bank, thrift, or credit union was $100,000. In the summer of 2008 the insured amount was increased to $250,000 for individuals, and business transactions accounts obtained complete coverage without limits.

[55] As a consequence of the financial crisis, the FDIC has begun offering insurance on bonds issued by banks.

FDIC insurance tends to be smaller for banks that are larger. If a bank with a substantial amount of uninsured fixed liabilities (i.e., uninsured deposits and other uninsured liabilities) is put into receivership, the uninsured creditors may experience losses, or may fear experiencing losses, which could cause contagion or a cascade (or both); i.e., if the sums are large enough, these losses could have systemic consequences.[56]

Second, a larger bank is more likely to have off-balance sheet exposures, such as derivatives positions. Table 4 shows the relevant data by size of bank. If a bank is put into receivership, the counterparties to these derivatives contracts may suffer losses, or fear that they may suffer losses, again possibly causing contagion or a cascade (or both) and systemic consequences.

Third, a larger bank is more likely to have a sizable holding company, where a major asset of the holding company is its investment in the underlying bank. The fixed liabilities of the holding company are not insured. If the underlying bank is put into receivership, the holding company is likely to have to declare bankruptcy. There currently is no receivership arrangement for holding companies. As of year-end 2007, Citigroup consisted of a $900 billion (in assets) holding company sitting on top of a $1,200 billion (in assets) bank. The bankruptcy of a $900 billion holding company would likely have systemic consequences.

Finally, it is worth remembering that the scenarios that we have thus far constructed in this section have involved a commercial bank, the deposits of which are guaranteed by the FDIC and over which the FDIC has receivership powers. But there are large financial institutions for which there are no government guarantees of the fixed liabilities and there are no receivership powers: large investment banks,[57] large finance companies (e.g., GE Capital, which had $650 billion in

[56] Stern and Feldman (2004), as a general characterization, express substantial doubt that contagion or cascades are likely to be significant phenomena.

[57] As of year-end 2007, there were five large free-standing investment banks: Goldman Sachs, Morgan Stanley, Merrill Lynch, Bear Stearns, and Lehman Brothers. By the end of September 2008, Lehman had declared bankruptcy, and the remaining four had either become bank holding companies (Goldman and Morgan Stanley) or had been absorbed into bank holding companies (Bear Stearns into JPMorgan Chase; Merrill Lynch into Bank of America).

assets at year-end 2007),[58] large bank holding companies (as was discussed above), and the holding companies of other large financial firms (e.g., American International Group [AIG]). Table 5 lists the 15 largest financial institutions in the U.S. at year-end 2007. It is worth noticing the relatively thin capital levels of all of the companies that are listed in Table 5, especially the investment banks.

3. Understanding TBTF.

The concept of TBTF can now be parsed: It involves a financial company (with thin capital); the company must be large; its interconnections with other financial companies must be extensive; and a receivership and government guarantee for all, or almost all of the company, must not be possible, so that a bankruptcy (and its uncertainties) are the only legal remedy for creditors.

It is important to realize that a large bank (if it has only a small or nonexistent holding company) can "fail", in the sense that the FDIC could declare a receivership, guaranty the fixed liabilities (so long as they are primarily deposits, or the FDIC is prepared to guaranty other bank liabilities), wash away the owners, and remove senior management. The FDIC would be unlikely to want to liquidate a large bank; the costs and inconveniences would be too great. Instead, it would want to find an acquirer. Although finding an acquirer for a very large insolvent bank might be difficult, the FDIC might choose instead simply to operate the bank for a while (as it did for IndyMac in 2008 and early 2009), inject sufficient cash to balance the bank's assets and fixed liabilities, and then eventually do an initial public offering (IPO) to place the bank back into the private sector.[59] In this sense, a large bank is "too big to liquidate"; but it is not too big to fail.[60]

Arguably, a similar process was applied to Fannie Mae and Freddie Mac in early September

[58] It is interesting to note that Fortune magazine, in its annual "Fortune 500" listings, includes the entirety of General Electric in the category "diversified financial" companies.

[59] This is approximately what the FDIC did with respect to Continental Illinois Bank in the 1980s, after the FDIC declared a receivership in 1984. At the time Continental Illinois was the seventh largest commercial bank in the U.S. See Sprague (1986) for more details.

[60] It is also worth noting that the FDIC was able to dispose of a near-insolvent Washington Mutual ($300 billion in assets, and only a small holding company) in September 2008 to JPMorgan Chase, and to dispose of a near-insolvent Wachovia Bank ($750 billion in assets, including a modest sized holding company) to Wells Fargo.

2008: Their regulator (the Federal Housing Finance Agency) declared a conservatorship and took control of the company. Although the shareholders were technically kept in place, their shares now trade for less than a dollar per share, far less than their value a few months before the receivership. Senior management was dismissed. The two companies' liabilities had always had an implicit guarantee; with the receivership, that guarantee became a bit stronger, but has still not become fully explicit. The two companies clearly failed; but they were too large to liquidate. A similar phenomenon occurred with respect to AIG in September 2008; it failed, but was not liquidated. And the same might be described for the absorption of Bear Stearns into JPMorgan Chase in March 2008.

The crucial element for the true TBTF phenomenon, then, in addition to size and interconnectedness, is the absence of government guarantees for the fixed liabilities and the absence of a receivership process. These were the elements that were in place when Lehman Brothers ($650 billion in assets) declared bankruptcy in September 2008. It was a failure that did traumatize the financial markets, leading the federal government immediately to decide that it would not force a bankruptcy of AIG.[61] These elements remain in place for most of the large financial companies that are listed in Table 5.

Finally, it is important to recognize that, although size is clearly an issue with respect to TBTF, antitrust and competition issues really are not. TBTF does not represent an instance in which size involves the exercise of market power. There clearly is a market distortion: A TBTF firm, in essence, is receiving a government subsidy.[62] But subsidies and other distortions are rife in the U.S. economy. Anyone interested in good public policy should argue for their reduction and eventual

[61] There was also an important cascade and contagion that followed from the Lehman bankruptcy: A large money market mutual fund (the Reserve Fund) owned a large enough amount of Lehman's commercial paper, which became worthless after the Lehman bankruptcy, that it had to "break the buck" and tell its shareholders that they would receive only 97 cents per share (rather than the $1.00 per share that is the norm). This immediately started a run on the Reserve Fund and on other money market funds, which caused the Federal Reserve to intervene and to issue a guarantee on existing money market mutual fund shares.

[62] Equivalently, one might argue that a TBTF firm is imposing a negative externality on society.

elimination. But the mantle of antitrust should not be stretched to cover such arguments.[63]

As another way of making this last point, consider a hypothetical merger between two financial companies that currently are not TBTF but that, post merger, might be considered to be TBTF: Would the DOJ-FTC Horizontal Merger Guidelines be of any benefit in helping analyze the merger? Since market power is not at issue, the answer would surely have to be "no".

[63] The characterization of a negative externality generates a possible policy route: a tax on the negative externality that is equal to the social cost of the externality. See Acharya and Richardson (2009) for an elaboration of this argument.

## VI. What Is to Be Done? An Antitrust/Competition Perspective

The reform of financial regulation is clearly a high priority task for current public policy. This concluding section will focus on potential reforms for which competition is an issue.[64]

### A. Eliminate Exemptions from the Antitrust Laws.

Exemptions are, of course, a broader issue than just their presence in financial regulation. Nevertheless, financial regulation would be a good place to start. The McCarran-Ferguson Act's exemption of the insurance industry from antitrust review should be repealed, as well as the Bank Merger Act's system of shared merger review responsibility between the DOJ and the banking regulators.[65]

### B. Maintain the Merger Guidelines Perspective in Merger Reviews.

The U.S. financial sector has a history of being highly fragmented, at least partly because of its orientation toward localism and state regulation. Despite several decades of numerous mergers among financial services firms, the financial sector remains fragmented, as is indicated by the large numbers of financial institutions that are found in Table 6. Given those numbers, mergers will surely continue; the current weakness in the financial sector may well spur additional financial mergers.

As a general matter, the perspective of the DOJ-FTC Horizontal Merger Guidelines should be maintained.[66] In that light, many financial markets – e.g., investment banking, securities trading, insurance, loans to large enterprises, mortgage loans, consumer loans – are likely to be national in scope. Accordingly, even mergers between large firms such as Bear Stearns/JPMorgan Chase and

[64] For a wider set of potential reforms, see White (2009a).
[65] See also the recommendations of the Antitrust Modernization Commission (2007, ch. IV.B).
[66] Whether a merger creates or exacerbates a TBTF problem is, however, a separate issue, as was discussed in Section V.

Merrill Lynch/Bank of America will not pose antitrust issues.[67]

Some financial markets, however – notably, for deposits and for loans to small- and medium-size enterprises (SMEs) – appear to be largely local. In the case of loans, this is because of problems of asymmetric information and the consequent need for a local presence by the lender to be able to assess the prospects of potential borrowers and to monitor actual borrowers; in the case of deposits, customers want the convenience of easy physical access to bank personnel. In these markets, then, antitrust concerns may be raised by mergers between even small banks (if the local market is small as well) or by mergers between large banks that have extensive branch networks that overlap in individual local markets.[68]

The DOJ and the bank regulators have been aware of these issues, and the requirement that mergers between banks with large branch networks be accompanied by branch divestitures (which include deposits and loans, as well as the physical premises) is commonplace.[69] In the recent absorptions of Wachovia by Wells Fargo and National City by PNC, the DOJ and the Federal Reserve insisted on branch divestitures in multiple metropolitan areas. Over the longer haul, as Table 7 shows, despite the diminishing numbers of banks in aggregate and the rising concentration of banks in deposit holdings when measured at the national levels, HHI measures at the level of metropolitan statistical areas (MSAs, which are used as approximations to urban local markets) and non-MSAs (which are individual counties and are used as approximations to rural local markets)

[67] Again, TBTF issues are a separate matter. For each of the two mergers in question, both parties were already in the TBTF category, and the merger was seen as a "rescue" of the faltering investment bank by the healthier commercial bank. It's unclear whether the mergers exacerbated the TBTF problem.

[68] In this regard, the 10% national deposit limit set by Riegel-Neal is irrelevant from an antitrust perspective and should be repealed. It is not a good TBTF instrument either, since (as the discussion in Section V indicated) it is not large amounts of deposits that create TBTF problems but large amounts of uninsured liabilities.

[69] One institutional feature is worth noting: In almost all instances, it is the branches of the acquired bank that must be divested to a third-party bank. This is a sensible requirement. Because customer loyalty in finance is significant (again, because of asymmetric information), there are fears that if the acquiring bank's branches were divested, the customers of the divested branch would abandon the third-party bank and return their business to the nearest branch of the acquiring bank. Since the customers of the acquired bank are going to experience a new enterprise with a new brand name in any event (and their old enterprise and old brand name has disappeared), they are more likely to stay as customers of the third-party acquirer.

have actually fallen over the past few decades. This vigilance should be maintained.

As a final consideration in any antitrust assessment of financial mergers, one special aspect of finance should be kept in mind: Entry is likely to be a less rapid and less powerful force for checking the exercise of market power than might be the case in otherwise similar non-financial industries.[70] The reason is asymmetric information: Lenders are likely to be more wary of entering and of expanding rapidly in unfamiliar markets, because of fears of adverse selection and moral hazard; and in financial industries where prudential regulation is in place, financial regulators should be additionally wary of rapid growth by their regulated firms, for the same reasons.

C. Don't Be Distracted by TBTF.

As was discussed in Section V, TBTF is not an antitrust issue. It should not become part of an antitrust agenda.

D. Modifying Financial Regulation to Encourage More Competition.

There are at least four areas in the discussion of financial regulation in Section IV where modifications could allow more competition and better outcomes.

1. Allow banks to pay interest on business checking accounts.

The prohibition on the payment of interest on commercial checking accounts is the remaining vestige of the more widespread regulation of interest on bank deposits. The rest of the restraining regulations were jettisoned almost 30 years ago, in the early 1980s. The time is long overdue for this regulation to be repealed as well.

2. Allow non-financial companies to own banks.

Although the Gramm-Leach-Bliley Act of 1999 eliminated the investment banking-

[70] See, however, Geroski (1995) for a survey of the economic evidence on entry, which argues that even in non-financial industries, entry may not be as powerful a force in checking the exercise of market power as is commonly believed. See also Siegfried and Evans (1992, 1994).

commercial banking barrier, it left in place the Bank Holding Company Act's prohibition on non-financial firms' ownership of banks (via a BHC). It should be no surprise that incumbent banks favor the continuation of this prohibition (and vigorously opposed Wal-Mart's efforts to enter banking a few years ago, which was discussed in Section IV). The arguments used by the banking industry – either that such ownership arrangements would threaten the safety and soundness of these banks, or that somehow these ownership arrangements (and especially Wal-Mart's ownership) would either decimate community banking or decimate local commercial rivals – do not stand up to close scrutiny.[71]

There is a legitimate prudential regulatory concern that accompanies any ownership arrangement of a bank: that the owners will try to drain resources out of the bank -- e.g., by making loans (that aren't repaid) to the owner, or to the owner's companies, or to the owner's customers or suppliers or friends, or simply by paying excessive dividends to the owner) -- so that the bank becomes insolvent and the FDIC has to take over the bank's obligations to depositors. But this potential problem is present regardless of whether the bank is owned by individuals or by a holding company, and regardless of whether the holding company is engaged in financial businesses or in non-financial businesses.

Bank regulators have long understood this potential problem and have "arm's length terms" rules for transactions by a bank with related parties, as well as limits on excessive dividends. Those rules can be as readily enforced when the holding company is engaged in non-financial activities as when it is engaged only in financial activities or when the bank is owned by individuals. It is a regulatory absurdity that the local car dealer can own a bank, but AutoNation, Inc. (a publicly traded company that owns multiple car dealerships) cannot.[72]

In sum, the BHCA's prohibitions on a bank holding company's engaging in non-financial

[71] For more details, see White (2009e).

[72] If non-financial enterprises were to be allowed to own banks, TBTF problems would arise only if the specific conditions discussed in Section V were to arise – which seems highly unlikely.

activities should be repealed.[73]

3. Repeal the Community Reinvestment Act.

As was argued above in Section III, the CRA is fundamentally an effort to "lean on" banks and savings institutions, in vague and subjective ways, to make loans and investments in local communities that (the CRA's proponents believe) those depository institutions would not otherwise make. As a non-trivial side effect, the CRA may well discourage banks from entering low-income neighborhoods. The CRA should be repealed and replaced with explicit, on-budget governmental subsidies that would provide the community financing and development that are the goals of the CRA's proponents.

4. End collective filing of insurance rates.

There are no good arguments to support the practice of group filing of insurance rates for property-casualty lines of insurance. Where states currently allow this to occur, it should be prohibited and instead be considered a violation of Section 1 of the Sherman Act.

5. Offer a federal insurance charter.

As an alternative to the state regulatory regimes, the federal government should establish a federal regulatory agency for insurance, which would offer a federal charter, establish regulatory rules and procedures, and establish a guarantee fund for policy holders in the event of insurance company failures. The dual (federal/state) banking system has worked well; a dual insurance system should work well also (and would be in the spirit of more competition among regulatory regimes, which is discussed below).

6. Replace the regulation of credit rating agencies with a regulatory structure that would encourage competition.

[73] On the assumption that Wal-Mart still has an interest in entering banking, an additional advantage to repeal would be to increase banking services for the "unbanked" and "underbanked" (since Wal-Mart's business model of catering to low- and moderate-income households with appealing goods and services at reasonable prices would likely carry over to banking as well). This, in turn, could allow other restrictive banking regulation (the Community Reinvestment Act) to be repealed. For more details, see White (2009b).

In the wake of the credit rating agencies' major stumble in being excessively optimistic with respect to the creditworthiness of subprime mortgage-related securities (discussed in Section V), the SEC has implemented regulations to try to alleviate their conflict-of-interest problems and to increase transparency.

It is tempting to want to regulate the rating agencies, so as somehow to force them to do a better job in the future. Forcing them to deal better with the conflicts of interest that are inherent in the issuer-pays model -- perhaps even banning the issuer-pays model as inherently too dangerous – and insisting on greater transparency has its attractions.

But the story of how the Big Three rating agencies came to be at the center of the market for bond information, which was recounted at the Section IV, is worth remembering: Starting in the 1930s, financial regulators have forced their regulated institutions (banks, insurance companies, pension funds, broker-dealers, money market mutual funds) to heed the judgments of the major rating agencies, thus endowing these judgments with the force of law -- and the problem was compounded by the SEC's erection of the "nationally recognized statistical rating organization" (NRSRO) category and its maintenance as a barrier to entry for over 30 years.

This experience suggests that there is another way to deal with the rating agencies: reduce their regulatory importance.

This second path should be pursued as follows: Financial regulators would still have the goal that their regulated financial institutions should have safe bond portfolios, and regulatory requirements to that effect should remain in place. But the regulators would withdraw their delegations of safety judgments that they have made to the credit rating agencies. Instead, the burden would be placed directly on the financial institutions to justify the safety of their bond portfolios to their regulator. This justification might involve the institution's doing its own research on the bonds (and showing that research to its regulator). Or it might involve the institution's relying on the information provided by a trusted advisor – which might be one of the incumbent

rating agencies but might instead be an alternative provider of bond creditworthiness information (and again, the institution would have to justify its choice of advisor to its regulator). Since these are regulated financial institutions, it is reasonable to expect that they would be able to ascertain and choose reliable advisors – with, of course, the oversight of their regulators.

With the regulatory burden for safety now placed directly on the financial institution, there would be no necessity to maintain the NRSRO category. Competition and entry in the market for bond information – including the possibilities of new ideas, new methodologies, new technologies, new business models[74] -- would be opened up in a way that has not happened since at least 1975 – and, arguably, not since the 1930s.

E. Beware of Proposals for Regulatory Simplification.

This final proposal does not directly affect competition in financial markets, but it is in the same spirit and could well have indirect effects.

As was noted in Section II, not only is the substance of financial regulation terrifically complicated, but the organizational structure of the U.S. regulatory system is mind-bogglingly complex:

-- There are five federal regulators of depository institutions, as well as one or more regulator in each of the 50 states;

-- The states also regulate lenders/originators that are not depositories;

-- There's a separate regulator for Fannie Mae and Freddie Mac and the Federal Home Loan Bank System;

-- There are two federal agencies that deal with securities and related financial instruments, as well as 50 state regulators (and 50 state attorneys general);

[74] Whether the issuer-pays model would survive in this more open environment would be a question that would be decided by the market rather than by regulation.

-- The regulation of insurance companies is exclusively the domain of the 50 states;

-- Pension funds are regulated by two federal agencies, and again all 50 states have a say; and

-- Consumer fraud in financial products can be the responsibility of yet another federal agency (the FTC), as well as the 50 states.

There are overlapping responsibilities and jurisdictional disputes galore. Indeed, any attempt to diagram these multiple agencies and their responsibilities ends up looking far more complicated than a 1930s radio wiring diagram.

This crazy-quilt pattern -- and its extra costs -- provides the ammunition for periodic proposals to simplify the architecture of financial regulation, even in the absence of a financial crisis. The Treasury's "Blueprint for a Modernized Financial Regulatory Structure," for example, though released in March 2008, was initiated a few years earlier as yet another proposal to simplify the structure, even before the subprime debacle was a specter on the horizon.

In the consideration of any simplification proposals, however, two important points should be kept in mind. First, there is no credible argument that links this complexity to the subprime debacle or the wider financial crisis that followed. Equivalently, it is far from obvious that a simplified regulatory framework would have addressed these problems any more readily.

Second, there is an important advantage to the complicated structure that is never mentioned by simplification proponents: The duplication of agencies provides alternate outlets for someone with a good idea -- whether it's a better way to regulate or a better financial instrument. Just as a monopoly in the private sector can be an impediment to new ideas, so can a monopoly in government regulation.

A few anecdotes can illustrate the benefits of diversity and alternatives in regulation. In the 1970s, the introduction of exchange-traded financial derivatives happened in Chicago, on exchanges that had previously handled agricultural and minerals futures, and under the regulatory jurisdiction

of the Commodity Futures Trading Commission (CFTC). This was not a coincidence. The instruments were seen as competition to the stocks and bonds that were traded in New York and that were under the jurisdiction of the SEC, which was usually sympathetic to the concerns of the New York-based brokerage community. Had there been only one regulator -- which surely would have been the SEC -- the development and flourishing of these instruments would have been restricted and delayed.[75]

A second anecdote also focuses on the 1970s: the beginning of the process of eliminating the Federal Reserve's ceilings on the payment of interest on bank deposits ("Regulation Q"), which were discussed in Section IV. It is worth noting that the consequence of Regulation Q for a roughly competitive banking (and thrift) industry was exactly what is taught in Economics 101 to freshman: a shortage of supply (of deposits) by households and businesses, an excess of demand, and less efficient ways of inducing households to bring and keep their deposits in the bank (such as offering them toasters, which began in response to Regulation Q).

The breaking of this gridlock started with a different regulator: the National Credit Union Administrator (NCUA), which in the early 1970s placed no restrictions on the interest rates that credit unions could pay to their depositors. Competition for deposits from credit unions then placed pressure on thrifts, which received some exemptions, and then on banks, which also received some exemptions. Finally, in the early 1980s, most of Regulation Q was repealed (although, as mentioned above, a vestige remains in the prohibition on banks and thrifts from paying interest on business checking accounts). The regulatory competition inspired by the NCUA surely hastened the demise of this inefficient regulatory restriction.

A third anecdote involves regulatory expertise in the 1990s concerning methods of measuring and regulating the interest rate risks that are embedded in the residential mortgages that are held by depository institutions. In this respect, the Office of Thrift Supervision (which regulates

[75] See, for example, the discussion in Gramm and Gray (1994).

thrifts) had far better knowledge of the problems and regulatory procedures for dealing with them than did the commercial bank regulators at the time. It took a while for the latter to catch up.

This defense of a complicated regulatory structure may well be quixotic. And it is surely true that the initial designers of a regulatory structure would never create the duplication and overlaps of jurisdiction that this defense supports.[76] Also, duplication sometimes risks a "race to the bottom" among regulators that try to retain financial institutions within their jurisdiction. Still, the proponents of simplification ought to think hard about the loss of diversity that would accompany it.

In Robert Bolt's "A Man for All Seasons," Sir Thomas More asks his son-in-law (William Roper), "What would you do? Cut a great road through the law to get after the devil?" When Roper replies affirmatively, More responds, "Oh? And when the last law was down and the devil turned 'round on you, where would you hide, Roper, the laws all being flat?"

A monopoly regulator need not be the devil. Still, the cause of financial innovation, and even regulatory innovation, will be better served in a more diverse environment.

[76] However, complex systems where an accident could have large negative consequences – e.g., a passenger jet aircraft – are often designed with deliberate redundancies and duplication so as to protect against unexpected failures.

## Appendix: A Primer on "Capital" and "Leverage"[77]

"Capital" and "leverage" figure prominently in discussions of the Debacle of '07-'08 and in discussions of remedies. This primer is intended to clarify these terms, as they apply to financial institutions.

We need to start, however, somewhere else: with the stylized balance sheet of a typical manufacturing corporation, as portrayed in Figure A1. That firm has assets of $100, consisting of plant, equipment, inventories, accounts receivable, cash on hand, etc. Its direct obligations to creditors are $60, consisting of loans owed to banks, any bonds owed to bond investors, accounts payable, etc. By simple subtraction, its net worth or owners' equity -- the value of its assets minus the value of its direct obligations -- is $40.

This firm has a leverage ratio -- its ratio of assets to net worth -- of 2½ to 1. The sense of the leverage ratio can be seen as follows: If the firm's assets increase by $10 (to $110) -- say, because it makes and retains operating profits of $10, or its assets simply appreciate by $10 -- without an increase in its direct obligations, then its net worth also increases by $10 (to $50). Thus a 10% increase in the value of its assets results in a 25% increase in its net worth -- a notion of "leverage" that is comparable to the high school physics example of a plank and a fulcrum.

Leverage also works in reverse: A 10% decrease in the value of the firm's assets results in a 25% decrease in the value of its net worth.

One other point to keep in mind: In a legal system of "limited liability" for the shareholder-owners of a corporation, those shareholders cannot be required to support the company beyond their initial contributions. Thus, if the company's assets were to fall below $60 (which would wipe out its net worth) and thus be inadequate to cover the claims of the company's creditors, those creditors

[77] This section draws heavily on White (2009c).

normally have no claim against the owners. The creditors will simply have to divide the (inadequate) assets among themselves to satisfy their claims, usually in a bankruptcy proceeding.

Accordingly, from the creditors' perspective the level of net worth is the extent of the buffer that protects them against a fall in the value of the assets that would expose them to a loss. The thicker the buffer (other things being equal), the more assured the creditors should feel. Typically, the terms of a bank's lending agreement or the covenants in bonds will allow the creditors to place restrictions on the actions of a company as that company's net worth buffer gets thinner.

Since net worth is also owners' equity, the extent of net worth is also a measure of the disincentive for the owners to take large risks, since a larger net worth means that they have more to lose and are farther away from the limit on their losses that limited liability provides.

We can now describe a commercial bank or thrift institution. Figure A2 provides the stylized balance sheet of a healthy bank or thrift. Its $100 of assets are primarily the loans that it makes and the bonds that it owns. Its direct obligations of $92 are primarily its deposits. And, again, by simple subtraction, it has $8 of net worth or owners' equity. For financial institutions, this net worth is also called "capital".

Note that this bank has a substantially thinner net worth (capital) buffer than does the manufacturing firm. Equivalently, it is much more leveraged: 12½ to 1. A 10% increase in the value of the bank's assets yields a 125% increase in the bank's capital. Note also that "capital" is not "money", or "cash", or "liquidity". It is net worth. Although a bank can increase its "capital" by getting a "cash injection" from investors, the increase in capital occurs because the additional cash adds to the assets of the bank and therefore to its net worth. If the bank lends or invests the cash, its capital is still augmented by the investors' infusion. By contrast, a loan of an equivalent amount of cash to the bank would not increase its capital (and would instead increase its leverage).

Again, leverage also works in reverse. A 10% decrease in the value of the bank's assets wipes out its capital and exposes its depositors to losses (again, because of the limited liability of the

bank's owners). Of course, a larger decline in the value of the bank's assets would mean an even deeper insolvency. An insolvent bank is portrayed in Figure A3.

If some depositors are unsure about the value of the bank's assets but are worried that the assets may be inadequate to satisfy all depositors' claims, those depositors may want to "run" to the bank to withdraw their funds before other depositors get the same idea. Other depositors, seeing or hearing about the first group's actions, may similarly rush to withdraw their funds.

This general depositor "run" on the bank can be exacerbated by the realization that even a solvent bank is illiquid, in the sense that it has loaned out almost all of the depositors' funds and keeps only a small amount of cash on hand to deal with "normal" withdrawals. (Think of Jimmy Stewart's efforts, in "It's a Wonderful Life", to stop his depositors' run by explaining to them that their money is not in the till but has been loaned to their neighbors.)

And, if depositors in the bank across the street see the run on the first bank and they fear that the same problems may apply to their bank as well, the depositors in this second bank may start a run on their bank. Thus can a "contagion" or "cascade" of bank runs develop.

The roles of a central bank, a prudential regulator, and deposit insurance in maintaining a stable banking system can now be seen. The central bank can lend (provide liquidity) to an otherwise illiquid but solvent bank, to help it deal with any temporary nervousness that might develop among its depositors. Prudential regulation is intended to prevent the bank from becoming insolvent and thereby prevent depositors from being exposed to losses. And deposit insurance provides a back-up reassurance to depositors, in the event that prudential regulation has failed to prevent the bank's insolvency.

Finally, Figure A4 portrays a highly leveraged investment bank. Its $100 in assets are its investments in bonds, loans, shares of stock, real estate, and just about any other asset -- real or financial. Its $97 in direct obligations are in the form of loans, bonds, commercial paper, and other obligations. By simple subtraction, it has only $3 in capital.

The investment bank's leverage ratio is 33-1/3 to 1. Only a modest decrease in the value of its assets can expose its creditors to losses. It's easy to understand how creditors would become nervous and begin a run on such an institution. (It's harder to understand why anyone would lend to such an institution in the first place -- but that's part of the mystery of the general neglect of risk by investors and lenders that is at the heart of the Debacle of ’07-’08.) Until March 2008 investment banks did not have access to the Federal Reserve for liquidity, the SEC was a weak prudential regulator, and there was no creditor insurance.

For all financial institutions, capital levels are so thin that accurate measurements of the value of the institution's assets -- and thus of its capital (because capital is determined by simple subtraction) -- are crucial. An accounting system that relies primarily on market values for the determination of asset values (with some allowance for the vagaries of thin markets), rather than on historical costs or on projected cash flows, is essential.

Figure A1: The Balance Sheet of a Typical Manufacturing Corporation

| Assets | Liabilities |
|---|---|
| $100 (plant, equip., inv., cash, etc.) | $60 (bank loans, bonds issued, accts. payable, etc.) |
| | $40 (net worth, owners' equity) |

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Figure A2: The Balance Sheet of a Well Capitalized Bank or Thrift

| Assets | Liabilities |
|---|---|
| $100 (loans, bonds, investments) | $92 (deposits) |
| | $8 (net worth, owners' equity, capital) |

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Figure A3: The Balance Sheet of an Insolvent Bank or Thrift

| Assets | Liabilities |
|---|---|
| $80 (loans, bonds, investments) | $92 (deposits) |
| | $-12 (net worth, owners' equity, capital) |

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Figure A4: The Balance Sheet of a Highly Leveraged Investment Bank

| Assets | Liabilities |
|---|---|
| $100 (loans, bonds, stocks, real estate, investments) | $97 (bonds, loans, c.p.) |
| | $3 (net worth, owners' equity, capital) |

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Table 1: Asset Sizes of Categories within the U.S. Financial Sector
(December 31, 2007)

| **Category** | **Assets ($ billion)** |
|---|---|
| | |
| Commercial banks | $11,176 |
| Savings institutions (thrifts) | 1,857 |
| Credit unions | 755 |
| Finance companies | 1,911 |
| Life insurance companies | 5,092 |
| Property/casualty insurance companies | 1,373 |
| Securities brokers and dealers* | 6,777 |
| Pension funds: private | 6,392 |
| Pension funds: public | 4,354 |
| Government sponsored enterprises (GSEs)** | 2,949 |
| GSE mortgage backed securities | 3,501 |
| Mutual funds: equity & bond | 8,200 |
| Mutual funds: money market | 3,107 |
| Mutual funds: hybrid | 713 |
| Aggregate stock market value | 25,196 |
| | |
| U.S. GDP (annual flow) | 13,844 |

* Includes investment banks
** Fannie Mae, Freddie Mac, and Federal Home Loan Bank System
Sources: Federal Reserve, FDIC, FHFA, NCUA, ACLI, III, ICI, BEA

Table 2: Deposits as a Percentage of Assets, All Banks and Savings Institutions
(by size category, December 31, 2007)

| **Asset size category ($ billion)** | **Deposits as a % of assets** |
|---|---|
| | |
| Under $0.1 | 81.4% |
| $0.1 - $1 | 79.4 |
| $1 - $10 | 71.0 |
| Greater than $10 | 61.4 |

Source: FDIC

Table 3: Insured Deposits as a Percentage of All Commercial Bank Deposits
(by charter category, December 31, 2007)

| **Category of institution** | **Average asset size ($ billion)** | **Insured deposits as a % of all deposits** |
|---|---|---|
| | | |
| State-chartered bank, non Fed member | 0.4 | 67.6% |
| State chartered bank, Fed member | 1.7 | 59.5 |
| National bank | $4.8 | 55.6 |

Source: FDIC

Table 4: Notional Value of Derivatives, as a Percentage of Bank Assets
(by size category, for banks that have derivatives, December 31, 2007)

| **Asset size category ($ billion)** | **Derivatives as a % of assets** |
|---|---|
| | |
| Under $0.1 | 1.9% |
| $0.1 - $1 | 6.4 |
| $1 - $10 | 12.3 |
| Greater than $10 | 1887.2 |

Source: FDIC

Table 5: Fifteen Largest Financial Institutions in the U.S.
(by asset size, December 31, 2007)

| Rank | Financial institution | Category | Assets ($ billion) | Equity as a % of assets |
|---|---|---|---|---|
| | | | | |
| 1 | Citigroup | Commercial bank | $2,182 | 5.2% |
| 2 | Bank of America | Commercial bank | 1,716 | 8.6 |
| 3 | JPMorgan Chase | Commercial bank | 1,562 | 7.9 |
| 4 | Goldman Sachs | Investment bank | 1,120 | 3.8 |
| 5 | American International Group | Insurance conglomerate | 1,061 | 9.0 |
| 6 | Morgan Stanley | Investment bank | 1,045 | 3.0 |
| 7 | Merrill Lynch | Investment Bank | 1,020 | 3.1 |
| 8 | Fannie Mae | GSE | 883 | 5.0 |
| 9 | Freddie Mac | GSE | 794 | 3.4 |
| 10 | Wachovia | Commercial bank | 783 | 9.8 |
| 11 | Lehman Brothers | Investment bank | 691 | 3.3 |
| 12 | Wells Fargo | Commercial bank | 575 | 8.3 |
| 13 | MetLife | Insurance | 559 | 6.3 |
| 14 | Prudential | Insurance | 486 | 4.8 |
| 15 | Bear Stearns | Investment Bank | 395 | 3.0 |

Note: The Federal Home Loan Bank System ($1,272) and TIAA-CREF ($420) have been excluded from this list; if GE Capital were a standalone finance company, its asset size ($650) would place it at #12.

Source: Fortune 500, May 5, 2008.

Table 6: Numbers of Financial Institutions
(as of December 31, 2007)

| Category | Number of institutions |
|---|---|
| | |
| Commercial banks | 7,282 |
| Savings institutions | 1,251 |
| Credit unions | 8,101 |
| Life insurance companies | 1,009 |
| Property/casualty companies | 2,723 |
| Securities firms | 5,562 |
| Mutual fund companies | 683 |

Sources: FDIC; NCUA; ACLI; III; SEC; ICI

Table 7: Trends in U.S. Bank Consolidation

| Year | Number of banks | MSA Average HHIs | Non-MSA Average HHIs | Percent of national deposits held by 10 largest banking firms |
|---|---|---|---|---|
| | | | | |
| 1980 | 14,435 | 1973 | 4417 | 18.6% |
| 1985 | 14,268 | 1990 | 4357 | 17.0 |
| 1990 | 12,819 | 2010 | 4291 | 20.0 |
| 1995 | 9,941 | 1963 | 4171 | 25.6 |
| 2000 | 8,314 | 1921 | 4019 | 36.1 |
| 2004 | 7,554 | 1820 | 3934 | 44.3 |
| 2008 | 7,282 | 1768 | 3830 | 51.4 |

Source: Adams (2007, p.37); FDIC