

**Resolving Large Financial Intermediaries:
Banks Versus Housing Enterprises**

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Abstract: This paper examines the policy issues with respect to resolving the possible failure of housing enterprises Fannie Mae or Freddie Mac. The authors compare and contrast these issues with those raised in the context of large bank failures and also identify important differences in the extant supervisory authorities. Based on these discussions, they offer a number of policy suggestions designed to minimize the cost of resolution and protect taxpayers from loss should a large bank or housing enterprise fail.

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Resolving Large Financial Intermediaries: Banks Versus Housing Enterprises

1. Introduction

Key Congressional committees have recently devoted considerable attention to the organizational structure and powers of the supervisor of Fannie Mae and Freddie Mac.¹ According to press accounts, one of the most contentious issues in that debate is whether the supervisor should have receivership powers in the event that either housing enterprise becomes insolvent. Proponents argue that the supervisor should be given powers similar to those the Federal Deposit Insurance Corporation has for commercial banks. Opponents argue that the current arrangement would rely upon Congress to determine the ultimate resolution of a failed housing enterprise and that is satisfactory and should be continued.

The debate over receivership powers for the housing enterprises' supervisor, currently the Office of Federal Housing Enterprise Oversight (OFHEO), is important for several related reasons.² First, the housing enterprises are large companies that have become central players in U.S. residential mortgage markets and the financial system. Second, the lack of receivership power for OFHEO likely reinforces investors' perception of an implicit federal guarantee of housing enterprise obligations by keeping open the option of a Congressional bailout. Third, this implicit guarantee contributes, in turn, to the housing enterprises' scale, results in a large contingent liability for taxpayers, and potentially distorts the risk management policies of these companies. Thus, an effective receivership process for the housing enterprises that imposes real

¹ The formal names of Fannie Mae and Freddie Mac are the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation, respectively. Because of the nature of their federal charters, these institutions are often referred to as government-sponsored enterprises, or GSEs. For an overview the current legislative debate pertaining to the supervision and regulation of housing GSEs (Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System) see Frame and White (2004a).

² OFHEO is an independent agency within the U.S. Department of Housing and Urban Development.

losses on equity holders and other designated creditors may significantly reduce the expected losses of taxpayers by reducing both the institutions' risk-taking incentives and the value of the implicit guarantee by limiting the size of the institutions.

Existing bankruptcy law exempts the housing enterprises from its provisions because these companies are considered "federal instrumentalities." Additionally, Congress has not given OFHEO the authority to fully resolve an economically insolvent housing enterprise. Rather this task would currently fall to Congress. This dependency, coupled with other statutory and regulatory provisions together with historical precedent, reinforces the market perception of implied government support for the housing enterprises.³ The consequence of this perceived implied guarantee is that the housing enterprises can borrow in the capital markets at interest rates more favorable than AAA-rated corporations, even though their "stand-alone" ratings are in the A-AA range.⁴

Arguably, the implicit guarantee of housing enterprise obligations is an important reason why Fannie Mae and Freddie Mac play a large role in the U.S. secondary market for "conforming" residential mortgages both as investors and securitizers of these loans.⁵ As of

³ These provisions include: 1) the Treasury is authorized to lend up to \$2.25 billion to each housing enterprise, 2) securities are considered "government securities" under the 1934 Securities and Exchange Act, 3) securities are issued and transferred through the Federal Reserve's "book-entry system", 4) securities are lawful investments for public funds, eligible collateral for discount window loans, and eligible for open market operations, and 5) can be invested in by national banks without limitation. See, for example, U.S. Congressional Budget Office (2001).

Past government actions also play a role in this perception. During the late 1970s and early 1980s Fannie Mae was insolvent on a market value basis and benefited from supervisory forbearance. Also, in the late 1980s, the Farm Credit System (a GSE serving agricultural finance) received a taxpayer bailout totaling \$4 billion. See U.S. General Accounting Office (1990).

⁴ Fannie Mae and Freddie Mac do receive AA- ratings from Standard and Poor's in terms of their "risk to the government". However, such ratings incorporate whatever government support or intervention the entity typically enjoys during the normal course of business, suggesting that they would warrant an even lower rating in the absence of their federal charters. See Frame and Wall (2002) for a discussion.

⁵ Conforming single-family residential mortgages are those with balances below the legal limits on the size of mortgages that Fannie Mae and Freddie Mac can buy. For single-family mortgage loans, the conforming loan limit is \$333,700 in 2004.

year-end 2003, these two publicly traded firms held about \$1.7 trillion in primarily mortgage-related assets and had another \$2.1 trillion in off-balance sheet guarantees of mortgage-related credit risk. The investment portfolios maintained by Fannie Mae and Freddie Mac consist largely of mortgage-backed securities that they have purchased in the open market, as well as whole mortgages that they acquire from originators. Fannie Mae and Freddie Mac fund these assets largely by issuing debt, and the two companies are highly leveraged with total equity that is less than 4 percent of total assets.⁶ The off-balance sheet credit guarantees arise when a mortgage originator exchanges a pool of loans for a mortgage-backed security (representing an interest in that same pool) that is issued and guaranteed (for a fee) by one of the two housing enterprises.

Fannie Mae and Freddie Mac face both credit risk and interest rate risk with respect to their mortgage-related portfolio investments, whereas their securitization activities largely involve only credit risk. The credit risk is that mortgage borrowers will not repay their debt and hence a lender will incur losses to the extent that this debt exceeds any recoveries from the sale of the mortgaged property. Given that the housing enterprises require a 20 percent credit enhancement (e.g., downpayment, mortgage insurance, second mortgage) on the mortgages they own or guarantee, their credit loss exposure is quite low. Indeed, over the 1987-2002 period, credit losses averaged 5.4 basis points and only 1 basis point annually for 1999-2002 (Inside Mortgage Finance, 2003). As a result, any insolvency of a housing enterprise is unlikely to arise from mortgage-related credit losses. The interest rate risk, however, may be more significant and has previously led to the insolvency of not only Fannie Mae but also thousands of savings and loans during the early 1980s. This risk manifests itself in two ways for fixed-rate mortgage investors: through any

⁶ By comparison, the mortgage-oriented thrift industry had a combined ratio of total equity to total assets of 9.4 percent as of year-end 2003.

maturity mismatches between their assets and liabilities, and through the effect of interest rate changes on borrower prepayment behavior.⁷ So, in the case of rising interest rates, the interest rate risk associated with mortgages results in both a capital loss on the fixed-rate debt instrument and a lengthening of the expected maturity of the instruments because of decelerated mortgage repayments. The housing enterprises hedge these interest rate risks by issuing callable debt and by purchasing derivative financial instruments, like interest rate swaps and options on such swaps.

Market participants also view the very largest commercial banks as benefiting from an implied guarantee in the sense that they are perceived to be “too-big-to-fail”. As a result, it is logical to consider how best to deal with a potential failure of either Fannie Mae or Freddie Mac by comparing the structure Congress established to deal with the insolvency of commercial banks, especially the very largest banks. The ten largest banks have assets ranging from over \$100 billion to over \$1 trillion and portfolios of off-balance sheet claims with notional principals ranging up to almost \$40 trillion as of the first quarter of 2004. Commercial banks, like the housing enterprises, have also long had a special relationship with the federal government, including the option of a federal charter and deposit insurance.⁸ Banks and housing enterprises are also both exempt from the Bankruptcy Code. Finally, bank supervisors have considerable experience resolving troubled banks and the issues surrounding bank resolution – especially for large banks – has been the subject of substantial analysis and debate.

⁷ The effect manifests itself in a non-linear way and gives rise to so-called “negative convexity”.

⁸ The National Bank Act of 1864 created the option for a federal bank charter. The Federal Reserve System was then created in 1913, in large part to serve as a source of emergency liquidity to its member banks. The creation of the Federal Deposit Insurance Corporation (FDIC) in 1933 heralded the beginning of federally provided deposit insurance provision, with a current limit on explicit deposit insurance of \$100,000 per depositor. Along with its responsibility for providing deposit insurance, the FDIC has also been given primary responsibility for the resolution of bank failures.

The primary contribution of this paper is to evaluate the policy issues associated with the resolution of an insolvent housing enterprise. We first analyze the current state of large bank resolution policy and suggest several improvements. We then contrast our recommended policies for large bank resolution policies with those of the housing enterprises. The basic premise is that any differences between the resolution policies for the housing enterprises and the recommended policies for large banks must be justified based on differences in the anticipated effects of resolution on the financial system and real economy. Absent compelling differences, we should exploit our understanding of bank resolution issues to fashion similar policies and procedures for resolving housing enterprises.

The remainder of the paper is organized as follows. The next section considers the general question of what the government's goal in resolving a large failing financial firm should be. The third section reviews the procedures used by the FDIC to resolve bank failures, analyzes the issues in resolving a large commercial bank, and makes some policy suggestions for reducing the losses associated with bank failures. The fourth section compares the resolution powers available to bank and housing enterprise supervisors, contrasts the issues in resolving a failing housing enterprise with those of a commercial bank, and then offers policy suggestions for improving the resolution procedures for the housing enterprises. The last section provides some concluding remarks.

2. Issues in resolving housing enterprise and large bank insolvency

Government involvement through a supervisory agency or Congress is unavoidable in the event that a housing enterprise or large bank becomes economically insolvent. As noted above, private creditors cannot force either type of institution into bankruptcy because both operate outside of the Bankruptcy Code. However, private creditors may prevent a housing enterprise or large bank

from continuing its normal operation by refusing to extend it credit, absent some sort of government guarantee. Given the size and importance of the housing enterprises and the largest banks, their inability to continue normal operation may have a substantial adverse spillover effects on the operation of the financial system. While bank supervisors have long been concerned about such “systemic risk”, it has only recently been suggested that the housing enterprises pose similar concerns (see Greenspan 2004).

The usual focus of policymakers is to avoid the severe adverse consequences of systemic spillover to the financial system or the real economy, regardless of the ultimate cost to the taxpayer. Absent a viable plan for resolving a large financial institution failure without serious adverse consequences, policymakers are likely to attempt to maintain the normal operation of the firm to the maximum extent feasible by leaving the firm in operation and gambling that it recovers (possibly with the assistance of more intensive supervision) through some form of forbearance.⁹ When forbearance is not viable, the next easiest alternative is for the government to provide financial aid to keep the bank in operation. Although such aid may take the form of open bank assistance, where the bank owners and managers retain their claims on the bank, more commonly the aid is limited to protecting the creditors from losses.

While policymakers face limited choices absent a well-developed resolution plan, they will have more options if they have made the necessary advance preparations to resolve a

⁹ For example, during the thrift crisis of the 1980s, the Federal Home Loan Bank Board (at the behest of Congress) engaged in a number of forbearance strategies. First, they permitted the use of net worth certificates to count as capital. Second, they allowed the booking of significant amounts of “goodwill” in acquisitions to bolster the regulatory capital of the acquiring institution. Third, they established “regulatory accounting principles” that permitted (among other things) deferring losses on mortgages sold for less than book value. See DeGennaro and Thomson (1996).

This propensity to gamble has also been manifest in many other countries around the world, resulting in significant losses to taxpayers while recapitalizing their banks (Honohan and Klingebiel 2003).

housing enterprise or bank. The following subsections discuss the key elements that need to be considered in such a plan.

2.1 Should the entity continue in operation?

The first question facing government policymakers is whether to continue the operations of the insolvent entity or to liquidate its assets and distribute the proceeds. In the case of a housing enterprise or large bank, the decision would almost surely be to continue it in operation for many reasons. First, even if the overall entity is insolvent, many parts of its operation are likely to have greater value as a part of a going concern than if the assets are sold piecemeal. Second, the liquidation of an entity would immediately terminate its ability to provide services, which could have substantial adverse effects on markets in which it operates and, possibly, the financial system. Third, the sheer size and complexity of the operations of these institutions would make piecemeal liquidation extremely difficult, time consuming, and costly. Finally, many non-banking companies have been successfully reorganized in bankruptcy and have emerged as viable entities without resort to liquidation. There is nothing to suggest that financial institutions are any different in this respect.

2.2 Should the equity holders retain a claim on the operations?

The next question facing government policymakers is whether to allow the equity holders in the insolvent entity to retain their equity claims. The advantage to the government of maintaining these claims is that it allows for the continued control and management of the firm by people who are perceived to have a stake in its success, with the least disruption to financial markets.

Of course, there are significant offsetting disadvantages to such forbearance. It leaves the management of the entity that was responsible for its insolvency in control of the firm's assets. In addition, the government must guarantee the credit exposure of the insolvent entity's creditors

(either explicitly or implicitly) to induce them to continue funding the entity. Such a guarantee not only exposes taxpayers to losses, but also creates moral hazard by reducing the cost of risk-taking to the entity. Indeed, creditors will demand a lower (or no) credit risk premium and exact little market discipline on the firm because taxpayers will bear any losses. Equity holders can also take excessive risks, even when the entity is healthy, knowing that they will get a second chance if the risks turn out badly. This “moral hazard” is especially pronounced if the entity is economically insolvent, because equity holders obtain part of the upside gains from successful gambles, but bear none of the losses if the entity is closed.

Finally, there may be limits as to the extent to which creditors will accept an implicit guarantee. If the entity becomes sufficiently insolvent, creditors may fear that the government will terminate equity holders’ claims and force the entity into resolution in order to limit the government’s risk exposure. At that point, the government may choose to renege on its implicit guarantee, exposing some or all of the creditors to losses, especially as the magnitude of the losses to taxpayers increase.¹⁰ Thus, at some level of insolvency, creditors are likely to demand either explicit guarantees or they will refuse to continue funding the entity.

2.3 Should some or all creditors receive a government guarantee?

If the government decides to continue the operation of the entity, but terminate the equity holders’ claims, it must decide whether (and to what extent) it will force unaffiliated parties (primarily the taxpayers) to cover losses that would otherwise be taken by equity holders; and uninsured, and uncollateralized creditors. Two important policy considerations are the impact on the incentives of managers and equity holders of solvent institutions and the impact that making

¹⁰ The government could follow a policy of implying the existence of a guarantee to induce creditors to continue contracting with the entity with no intention of honoring its guarantee if the entity is ever closed. However, this is not an equilibrium policy. The first time the government reneges on an implicit guarantee, creditors will be far less confident of any implicit guarantees that have been given to other entities.

certain types of creditors absorb losses may have on the viability of the continuing operation of the institution.¹¹ A third issue is that government risk bearing may be intended, as a matter of public policy, to provide a subsidy to the activities of the entity. For example, the government provides a number of implicit subsidies to the housing enterprises that reduce their direct cost of operation and debt funding costs on the belief that this might allow them to reduce mortgage rates for homebuyers.

2.4 What should the government seek to do?

If a large financial institution becomes economically insolvent and there is little practical chance that it would be liquidated, then what should the government's policies be in resolving the failure?¹² Put another way, how should losses be apportioned? We believe that, in almost all cases involving mega-entities, the decision would be made in favor of continuing operation while at the same time minimizing the loss exposure of taxpayers. Accordingly, in our analysis below we assume that most, if not all, of the operations of an insolvent housing enterprise or bank would be continued, at least until the entity's equity holders have decided whether to recapitalize the institution. Care should be given, however, to avoid forbearance for several reasons: 1) it generally transfers wealth from other creditors and the taxpayers to the failed bank's equity holders, 2) it creates incentives for excess risk taking; and 3) it sometimes allows inefficient managers to remain in control of the entity's assets. Hence, we believe that there are virtually no instances that would justify the use of forbearance to keep even the largest of financial institutions on life support, especially when there are alternative policies available that do not have these costs associated with them. For example, while a large financial firm may be too big

¹¹ An example of this latter point is that forcing derivatives counterparties to bear losses may limit the ability of the surviving entity to manage its risk.

¹² This summary of appropriate government policies is essentially the same as that proposed by Kaufman (2004b).

to liquidate, we believe there are important ex ante incentive reasons that losses should be imposed on equity holders, and also on subordinated debt holders, if there are not sufficient assets to cover their claims. And finally, if both equity holders and subordinated debt holders are wiped out, then the establishment of a priority of claims should be established to impose losses sequentially on the remaining claimants to induce them to monitor and control their risk exposures.

The next two sections explore these incentive issues in more detail with an emphasis on mechanisms that constitute feasible and practical alternatives to forbearance; that would apportion losses on certain private creditors while protecting other private creditors from losses; and that avoid making taxpayers bear the residual risk.

3. Large commercial banks

With the passage of the FDIC Improvement Act of 1991 (FDICIA) Congress laid out its priorities for the resolution of commercial bank failures that provide important parallels for the resolution proposals of this study. FDICIA (12 U.S.C. § 1831o(a)) mandates that the FDIC select the resolution method “least costly to the deposit insurance fund” (12 U.S.C. § 1823(c)(4)(A)) and this has meant, in practice, that the FDIC guarantees losses only up to the statutory guarantee limit of \$100,000 per depositor.¹³ However, Congress also recognized in FDICIA that situations might arise in which government risk bearing could prevent or mitigate substantial harm to the financial system and the real economy. Thus, there is one exception to least cost resolution called the “systemic risk exception” (12 U.S.C. § 1823(c)(4)(G)), which should be invoked very infrequently. In that case, the FDIC may provide additional assistance if

¹³ The term “deposit” is defined in a way that allows coverage of more than one account up to \$100,000. For example individuals may have up to \$100,000 per account in both their personal and their self directed retirement deposit accounts. FDICIA contains several provisions to cushion the FDIC from losses, including provisions that will provide for ex post rebuilding of the FDIC fund through levies on surviving banks up to the entire equity of the banking system.

compliance with least cost resolution of “an insured depository institution would have serious adverse effects on economic conditions or financial stability”. However, in order to make use of this exception extremely difficult, it may be invoked only when agreed to by (1) two-thirds of the FDIC Board, (2) two-thirds of the Board of Governors of the Federal Reserve System, and (3) the Secretary of the Treasury “(in consultation with the President).”

This section begins with a discussion of the procedures used by the FDIC to resolve bank failures, with special attention to likely procedures for handling a large bank failure. The section then analyzes some of the concerns that may be used to justify exercising the systemic risk exception, focusing on actions that have or might be taken to mitigate these concerns.

3.1 FDIC resolution procedures

The FDIC has the authority both to provide financial assistance before or after a bank has been closed, but post-1991 the agency virtually always acts after closure.¹⁴ The FDIC also is authorized to serve as either a conservator or a receiver of a troubled bank. As a conservator the FDIC is charged with putting the bank in a “sound and solvent condition,” whereas as a receiver the agency may liquidate the bank.¹⁵ In practice the agency has relied exclusively on its receivership authority for commercial banks after they have been declared insolvent by their chartering authority.^{16,17}

¹⁴ The FDIC may provide financial assistance while the bank continues in operation under its existing management in a procedure is called “open bank assistance.” However, because FDICIA mandates the early and least cost resolution of failing banks, open bank assistance has become inappropriate for almost all bank failures.

¹⁵ The general powers and duties of the FDIC as a conservator or receiver are given in 12 U.S.C. § 1821(d). The FDIC may decline the appointment of receiver by a state chartering authority under 12 U.S.C. § 1821(c).

¹⁶ This subsection is largely taken from the FDIC (2003).

¹⁷ The agency has used this power in the case of thrifts, most recently at Superior Bank F.S.B., see FDIC Inspector General (2002). However, with Superior Bank the FDIC did not become conservator of the original Superior Bank. Rather the FDIC used the pass-through receivership method in which the original Superior Bank was closed, and the FDIC created a new thrift that assumed part of the liabilities and part of the assets of the original bank. The FDIC was then appointed conservator of the new thrift. This is similar to the bridge bank approach to resolution.

The resolution process starts with the decision to close the failing bank. The prompt corrective action (PCA) provisions of FDICIA require the supervisors to take such action when a bank's book tangible equity-capital-to-asset ratio falls below 2 percent. After a federally insured failing bank is closed by the bank's chartering agency, the FDIC is appointed receiver, although the FDIC has gained the authority to appoint itself receiver in certain circumstances.¹⁸ In acting as a receiver, the FDIC is in a position similar to that of bankruptcy trustee for an insolvent nonbank corporation. Among the most important differences are that the FDIC's actions are not overseen by a court and are only reviewable by courts in limited circumstances.¹⁹

As receiver, the FDIC typically uses one of two general approaches to resolving failed banks: it either engages in a deposit payoff or arranges a purchase and assumption transaction. In a deposit payoff the FDIC liquidates the bank's assets and distributes the proceeds; with insured depositors being paid immediately. Uninsured creditors are paid their share of the proceeds as the assets are liquidated. In a purchase and assumption, the failed bank is sold with the acquiring bank taking some or all of the assets, the insured deposits, and some or all of the remaining liabilities. These general mechanisms may be tailored in a variety of ways to fit the circumstances. The FDIC ordinarily prefers to use the purchase and assumption method, as this imposes lower costs on uninsured depositors and retains whatever franchise value remained in the failed bank. Deposit payoffs are most likely used to resolve very small banks that fail to attract adequate bids or in cases where the bank failed due to fraud with outstanding, but as yet

According to the FDIC (2003, p. 35) the FDIC lacks the authority to create a bridge thrift but could use its power to serve a conservator of a new thrift to achieve the same result.

¹⁸ The Office of the Comptroller of the Currency (OCC) and many state banking commissioners must appoint the FDIC as receiver.

¹⁹ See Chapter 7 of FDIC (2003), especially pages 73 and 74, for a description of some additional differences between the FDIC's power as a receiver and that of a bankruptcy trustee.

unrecognized, liabilities or where the extent of the bank's contingent liabilities cannot be adequately evaluated.

Regardless of the method of resolution, some losses may be imposed on equity holders or on other claimants. When a bank is placed in receivership, equity holders are the first to have their claim reduced or, more commonly, eliminated. After that, under the "depositor preference provisions" of the 1993 Omnibus Budget Reconciliation Act creditors claims are settled in the following priority: (1) administrative expenses of the receiver, (2) secured claims (to the lesser of the value of the claim or the value of the collateral), (3) domestic deposits, both insured and uninsured, (4) foreign deposits and other general creditor claims and (5) subordinated creditor claims (12 U.S.C. § 1821(d)(11)). If the assets were insufficient to cover the claims of the insured depositors, the FDIC would guarantee their claims and would assume the insured depositor's priority.

While the FDIC's two general resolution approaches are adequate for small bank failures, they are likely to prove inadequate in dealing with a large bank failure. Bovenzi (2002) points out that liquidation is unlikely to be the least cost resolution procedure for a "megabank" as the bank is likely to have considerable franchise value once it was recapitalized and permitted to resume operations. Moreover, he notes that even in the relatively simple case of Continental Illinois, potential acquirers demanded costly guarantees and assurances that likely would have raised the overall cost of resolution if the FDIC had undertaken an immediate purchase and assumption transaction.

Bovenzi (2002) suggests that a bridge bank structure is more likely for the resolution of a megabank. The FDIC (2003) describes bridge bank transactions as "a type of P&A in which the FDIC itself acts temporarily as the acquirer." The bridge bank assumes all of the insured

deposits, but need not assume all of the assets or any of the uninsured liabilities. Those liabilities that are not passed through to the bridge bank receive payments as the assets are liquidated. After formation of the bridge bank, the FDIC selects a new CEO to run the bank until its final resolution can be arranged. The goal in operating the bank is to run the institution conservatively, preserve its franchise value, and “lessen any disruption to the community” (FDIC 2003, p.36). The advantage of a bridge bank is that it gives the FDIC time to arrange a purchase and assumption; it gives potential buyers time to evaluate the bridge bank; while permitting depositors access to their funds and enabling credit to flow where needed; and offers the possibility to haircut unsecured claimants who are not insured to the extent that assets are insufficient to cover their claims.

Thus, the critical issue facing the FDIC in resolution is how much, if any, of the liabilities that are not either provided de jure deposit insurance coverage or are fully collateralized to pass through to the bridge bank. The FDIC must honor the priorities established by the depositor preference provisions in distributing the proceeds from the bank’s assets. Bovenzi (2002) points out that it is likely that the shareholders of the original bank will be wiped out.²⁰ In most instances, some classes of creditors, such as the subordinated debt holders, will also likely be wiped out or suffer large losses. Moreover, Bovenzi (2002) notes that the FDIC can protect some creditor classes without protecting other classes with equal or greater priority, so long as no creditor class receives less than it would have received in liquidation. Thus, he notes that if systemic risk concerns are centered on a particular class of creditors, the FDIC could make that class of creditors whole, even though other creditors are limited to their share of liquidation proceeds.

²⁰ One would hope that this were always the case, for if equity holders didn’t lose their stake then the bank should not have been closed – except in that rare instance when the bank is closed with (less than 2%) positive net worth.

3.2 Potential problems with methods of resolving large bank failures

A number of concerns have been expressed about the economic and financial consequences of resolving a large bank failure through liquidation. However, the alternative of having the FDIC provide financial support without closing the bank is also subject to important problems as well. Government attempts to avoid systemic risk problems by providing financial assistance, but otherwise continuing the normal operation of the bank and honoring all existing liabilities may eliminate almost all of the adverse impact of bank failure in the short-run, but may significantly distort management incentives, encourage moral hazard behavior, and place the taxpayer at great risk -- especially if the institution is economically insolvent.

FDICIA deliberately created procedural hurdles to be overcome before the systemic risk exception could be invoked as a way of encouraging the FDIC to avoid such guarantees. Thus, the policy question is what kind of circumstances might arise that might necessitate invoking the systemic risk exemption and how they might be resolved.

The following subsections evaluate the likely significance of a number of concerns about possible systemic risk problems that have been raised about the failure of large banks, and the extent to which resolution procedures adequately address those concerns.²¹ The last subsection overviews the current state of resolution issues.

3.2.1 Contagious runs

One common concern is that the closure of a bank with losses to depositors could lead to runs on other banks, even if they are solvent. A common version of this concern starts with the fear that uninsured depositors in other banks may run if they believe that the failure of one bank signals

²¹ A potentially important issue in bank resolutions that is not addressed below is that of the liquidity of depositors' claims. Some types of bank deposits are used as money. Delayed access to these deposits may impose large costs on credit constrained depositors. We do not address this issue in large part because it has not been an important problem in the failure of large banks and because the housing enterprises do not issue money-like deposits. See Kaufman (2003) for a further discussion of the issue of liquidity of bank deposits.

an increase in the probability of failure of their bank. This fear is that depositors may perceive the cost of mistakenly making such a withdrawal if their bank turns out to be solvent is minimal as the funds can always be redeposited in the bank. However, if their bank is insolvent then immediate withdrawal could protect the depositors from significant losses. Yet, the problem with deposit runs on solvent banks is that banks rarely have sufficient liquid funds to cover all possible withdrawals. Solvent banks may try to cover the withdrawals by selling assets, but the losses from such a “fire sale” of assets may cause a previously solvent bank to become insolvent. Concerns about such deposit runs are frequently given as a reason for the creation of the FDIC.

While the possibility that a failure of a large bank might trigger contagious runs on solvent banks may sound plausible, it lacks empirical support. Kaufman (1994) reviewed a large number of studies of bank failure and concluded that there is virtually no evidence of contagious bank runs. The banks that have historically been run upon were of doubtful solvency before the run. One reason that such deposit runs are not observed is that deposit withdrawals may not be costless because they could damage banking relationships that are valued by the depositor. One way to further reduce this potential uncertainty about individual bank’s solvency is for bank supervisors to engage in timely resolution and avoid both the use of implicit guarantees and forbearance. To the extent that bank supervisors have superior knowledge about bank asset quality, they should always act on that information by closing insolvent institutions, and communicate this information to the public. Prompt resolution of insolvent institutions almost eliminates depositor incentives to engage in runs. In effect, the supervisors would be acting as “delegated monitors” in the Diamond (1984) sense, and to the extent they are credible, then losses to depositors are likely to be low, since the regulators act to ensure that they are borne by the equity and subordinated debt holders instead.

If for any reason the supervisors do not resolve a bank until the losses exceed equity and subordinated debt, they may be forced to honor any implicit liability guarantees they have made to the other creditors as a result of perceptions that some banks are too-big-to-fail. If the supervisors fail to honor the implicit guarantee then creditors at other banks are likely to decide that the supervisors would not honor the implicit guarantee on their claims either. Uninsured creditors at other financially weak banks are likely to seek to re-contract, either by demanding higher interest payments or by withdrawing their funds, creating the potential for a rational run on other banks. Essentially, this is what happened when the Ohio Deposit Guarantee Fund collapsed, where depositors withdrew funds at other troubled banks when it became unclear that the state of Ohio would back its implicit obligation to the Ohio Deposit Guarantee Fund (Kane, 1987). Given this potential, if supervisors do not plan on guaranteeing a particular type of liability, they should terminate the market's belief in implicit guarantees by explicitly announcing a credible resolution plan that would not guarantee the liabilities.

Although a run on a large, solvent bank could create some undesirable disruption in financial markets, such a run need not force the bank to become insolvent. Banks have the option of using good collateral to borrow from the Federal Reserve at a short-term penalty rate that surely is more attractive than resorting to asset fire sales. In this regard, the discount window is a critical component in forestalling runs that might create liquidity problems for otherwise solvent institutions.

3.2.2 Direct interbank credit exposure

Another way in which a bank failure could adversely impact the financial system is through the contagion effect of default by the failing bank on loans made to it by other banks. Banks routinely borrow and lend short-term funds in various interbank markets, including the federal

funds market. One of the reasons given for protecting all of Continental Illinois's creditors was fear that failure to do so could have led to financial problems at a number of smaller banks that had lent money to the failed bank through the federal funds market.

The concern about direct interbank credit exposure, though, has also been overstated. In the specific case of Continental Illinois, those banks with unsecured deposits could reasonably expect to recover almost all of their balances. Even though 65 banks had uninsured balances with Continental Illinois in excess of their capital (U.S. Congress, 1984, pages 16-18), Kaufman (1990) determined that creditors were expected to recover 96 percent of these balances, with the result that only two banks would have losses of between 50 and 100 percent of their capital. Moreover, since that time FDICIA directed the Federal Reserve to develop new regulations limiting interbank credit exposure in order to minimize any remaining risk. In response, the Federal Reserve adopted Regulation F that requires that banks have a written policy to "prevent excessive exposure to any individual correspondent in relation to the condition of the correspondent."²² If the correspondent bank is not at least adequately capitalized, Regulation F further restricts a bank's total exposure to its correspondent to 25 percent of the respondent's capital.

3.2.3 Credit exposure as by-product of service provision: Payments

A third general mechanism for contagious spillovers from the failure of one bank to many is the workings of a variety of financial systems that generate interbank credit exposure as a part of the provision of some other service. Perhaps the area of greatest concern is that of the payments system, in which a bank receiving a payment may allow its customer to withdraw the funds before the bank receives good funds from the paying bank. Similar problems may arise in

²² Regulation F may be found at 12 C. F. R. 206.

settling foreign exchange and securities transactions, where simultaneous delivery versus payment is not always feasible.

Eisenbeis (1997) discusses two types of payment systems that are especially dependent on the creation of interbank credit exposure. One such payment system cumulates transactions throughout the day from its members, tracking the net balance of each participant. Then, at the end of the day, each bank makes or receives a single payment in settlement for its net obligation. The advantage of such a “net settlement” system is that it minimizes the demand on a bank’s liquidity. The disadvantage is that if one or more banks fail prior to settlement, the other banks in the system are exposed to credit risk with the amount of exposure depending on the payment system’s rules for distributing losses and/or the relevant bankruptcy law(s) that may be applied to the various participants. In response to the risks created by netting settlement payments systems, bank supervisors and central banks have encouraged a movement towards real time gross settlement systems (RTGS). In a RTGS, each transaction is processed and settled separately, in real time, throughout the day. Such a system does not create interbank credit exposure; but it may increase banks’ need to hold liquid assets.

Most wholesale payments processed by U.S. banks are made through Fedwire or the Clearing House for Interbank Payments System (CHIPS), which is operated by the New York Clearing House. Fedwire, operated by the Federal Reserve, is an RTGS. CHIPS provides bilateral and multilateral real time netting to provide payments finality for all released transactions, with any payments not released during the day being settled on a multilateral net basis. The bank supervisors recognize the potential risks associated with Fedwire, CHIPS and other large value payment systems and the Board of Governors of the Federal Reserve System (2001) has issued a policy statement intended to limit that risk exposure.

Eisenbeis (1997) points out that interbank credit may also arise in the context of international payments systems. Historically the largest part of this risk arises from settling payments in different currencies at different times, a risk frequently referred to as “Herstatt risk” after the losses many banks incurred in the 1974 closure of Herstatt Bank in Germany. The losses involved were the result of the timing of the closure of the Herstatt bank, which was after the Deutchmark claims had been settled, but before the bank’s dollar claims had been settled. It should be noted that this did not affect the amount of the losses incurred by the creditors of Herstatt bank, but only the distribution of the losses among claimants. This source of risk has been largely eliminated by the creation of Continuous Linked Settlement (CLS) Bank, according to Miller and Northcut (2002).²³ Along the same lines, U.S. bank supervisors are working with the two large banks that control the clearing of US securities transactions to have an alternative should one of the two banks fail (Paletta 2004).

3.2.4 Credit exposure as by-product of service provision: OTC derivatives

An area that creates longer-term credit exposure and other dependencies is that of over-the-counter (OTC) derivatives, which are customized derivative contracts between two parties. Credit exposure arises from OTC derivatives to the extent that the present value of payments by one party exceeds the present value of payments by the other party. The credit exposure on OTC derivatives may, but need not, be backed by collateral.²⁴ The largest commercial banks use OTC

²³ Groenfeldt (2002) argues that one of the main reasons for the creation of CLS Bank was the threat of supervisory actions if banks did not take some action to reduce their credit exposure on foreign exchange transactions.

²⁴ In contrast, contracts traded on options and futures exchanges, such as the Chicago Mercantile Exchange and the Chicago Board of Option Trade, are collateralized through the use of maintenance margin accounts on all customer positions. All contracts are with the exchange and do not involve contracts between pairs of buyers and sellers. The exchange, by virtue of the maintenance margin accounts, therefore always has the funds to settle the transaction, even if one of the parties fails. One important limitation of exchange-traded derivatives is that the contracts are standardized as to index and maturity, whereas OTC derivatives may be based on any index and for any time period agreeable to the two parties.

derivatives both to manage their own credit exposure and to act as dealers providing risk management services to their customers.

Bliss (2003a) discusses legal issues relating the OTC derivative contracts of a failing firm, including a review of the standard legal contract, the treatment of the contracts under general bankruptcy law in the US and around the world, and the special provisions relating to FDIC resolution of failing banks. In particular, the FDIC has the right to transfer qualifying financial contracts to another financial institution, including a bridge bank, provided the counterparty to the contract is notified by noon the next business day.

Bliss (2003b) argues that probably the best approach to resolving a failing large complex financial firms with substantial OTC derivatives portfolio would be to intervene before the firm became insolvent, as required under FDICIA. Bank supervisors and/or the central bank could facilitate a collective agreement between the failing firm and its counter parties, by encouraging them to resolve their credit problems privately. Private resolution, as happened with Long Term Capital Management (LTCM), may maximize the total recoveries by counterparties.²⁵

Kaufman (2003) considers the disposition of the OTC derivatives portfolio of a bank that has become insolvent. He argues that liquidation of the contracts would leave the counterparties with unhedged positions and could result in fire sale losses as the counterparties sought to reduce their risk exposure by closing out their now unhedged positions. He notes a perception that, because of this problem, the FDIC would likely transfer the derivatives portfolio to another bank without imposing losses on the derivatives counterparty. As an alternative, Kaufman (2004c) suggests that contracts be continued but that the FDIC require those counterparties with a positive mark-to-market value of their portfolio pay a penalty to the FDIC in an amount equal to the losses they would have incurred had their position been liquidated.

²⁵ The Federal Reserve did not inject funds into LTCM. See Edwards (1999) for a discussion of LTCM's resolution.

Both Bliss (2003a, 2003b) and Kaufman (2004c) focus on the handling of the credit losses associated with derivatives portfolios. However, merely allocating the credit risk is not the only problem with resolving the derivatives portfolio of a failed bank, nor even necessarily the most difficult problem. By construction, derivatives values are highly sensitive to changes in market rates and prices, with the simplest derivatives equivalent to highly leveraged positions in financial claims. The benefit of hedging in the derivatives market relative to the cash market is that hedging with derivatives allows hedging of very large exposures with far lower credit exposure and funding requirements. However, this very benefit means that transferring the portfolio of derivatives contracts may pose problems both for the receiver of the failing bank and for the buyer(s) of the portfolio.²⁶

The problem for the receiver would arise if the bank's derivatives portfolio were partially hedging the bank's on-balance-sheet exposure and/or on-balance-sheet exposures were being used to hedge derivatives positions. The removal of the derivatives portfolio would leave the on-balance sheet positions unhedged, possibly resulting in additional gains or losses depending upon the net exposures of the failed bank's portfolio and changes in market prices.²⁷ Would these gains and losses be absorbed by the FDIC, by the uninsured creditors of the failed bank awaiting payment from the liquidation of some of the assets, or some combination (e.g., the FDIC absorbing part of any net losses but transferring any net gains to the uninsured creditors)?

The other problem is finding a bank to take all or part of the derivatives book. If the derivatives book were sold, the buyer(s) would be taking interest rate risk exposure at least equal

²⁶ See Stulz (2004) for a general discussion of the problems associated with reestablishing hedges in the wake of the failure of a large market participant. See also Wall, Tallman and Abken (2000) for a more focused discussion of one of the problems that may arise from firms trying to reestablish hedges after the failure of a dealer.

²⁷ A similar problem would arise to the extent that the failing bank was relying on dynamic hedging to manage risk exposure. In this case, not only would the bank need to maintain its existing derivatives portfolio, but it may have to enter into new contracts to be properly hedged.

to that of the selling bank. The buyer(s) must either already have a natural hedge for this position or create new hedges very shortly after assuming the position. The buyer(s) would also have to assume the failed bank's current and potential future credit exposure to individual counterparties.

One solution to the risk management question is to transfer the derivatives book to the bridge bank and let the bridge bank manage the portfolio. The problem with doing so is the question of the credit losses that would otherwise be borne by the derivatives counterparties. This problem may not be too large, as many market participants will have demanded collateral for their net credit exposure, especially if the market recognizes the bank's financial problems well before it is resolved. This collateralization route suggests an alternative that may minimize disruptions to the markets for risk management, and give the OTC derivatives a priority claim over most other uninsured liabilities. If the bank were promptly resolved and the derivatives counterparties know that they have priority, then counterparties would know that any hedges they may have put on would remain intact and that they may not be exposed to credit losses either. Thus, they may not have an incentive to attempt to unwind their positions, which would avoid or significantly reduce any disruption to derivatives markets that might otherwise occur.

3.2.5 Loss of bank services

As is the case with the failure of any firm, the failure of a bank forces its customers to seek services from other financial services firms. Benston (2004) argues that the cost to bank customers from failure should be less than those associated with other firms because bank services are readily obtainable from many suppliers. In contrast, he argues many nonbank firms offer products and services that are obtainable from other parties only at very high costs. The availability of banking services was a critical issue in evaluating bank mergers after the Bank

Merger Acts of 1963 and 1966, which provided a convenience and needs exception that would permit mergers to take place that would otherwise violate the antitrust laws in order to maintain banking services in a community. Similarly, as a part of its resolution powers the FDIC was permitted to create and fund a bridge bank if it were necessary to maintain banking services within a community, or for a class of customers.

The counter to Benston is that banks specialize in informationally intensive loans and that the failure of a bank may result in at least temporary interruption of good loans, which could have larger economic consequences. A large number of studies have examined the macroeconomic impact of bank failures both in the US and abroad with mixed results.²⁸

Overall, while the failure of a large bank would almost surely have an adverse impact on some of the bank's credit customers, as Benston (2004) points out, such a failure is often less disruptive to customers than the failure of a large non-bank firm. The loss in service would be further reduced to the extent that the FDIC formed a bridge bank. However, to the extent the bridge bank is not a perfect substitute for the original bank, two other factors now also mitigate concerns about loss of services. First, the change in branching laws and movement to full interstate banking has expanded the number of offices and brought alternative banking services to a broader range of customers than was the case when branching was either restricted or prohibited by state statute. Second, the informational advantage that local banks have had in assessing commercial credit quality has eroded. Large commercial customers have access to a variety of short-term borrowing options that may substitute for borrowing from a single bank, including both the commercial paper market and the syndicated loan market (Bassett and Zakrajšek 2003), while credit scoring and related methods have proliferated in small business

²⁸ See Benston and Kaufman (1995) for an overview of much of this literature. More recent papers include Ashcraft (2003), Brewer, Genay and Kaufman (2003), and Ongena, Smith, and Michalsen (2003).

lending such that borrowers can now access credit from distant lenders (Berger, Frame, and Miller, forthcoming; Frame, Srinivasan, and Woosley 2001).

3.2.6 Activities outside FDIC jurisdiction

While the FDIC is almost surely going to be the receiver of a failed, large domestic commercial bank, the parent holding company and nonbank affiliates of the bank are ordinary corporations for the purposes of bankruptcy law. As such, their resolution would be in the hands of the bankruptcy court and trustee. Moreover, the FDIC is unlikely to have the same level of discretion with the foreign operations of a failed bank that it has with the bank's domestic operations.

Herring (2002) considers the problems associated with resolving the failure of international financial conglomerates. He notes that advances in information technology have lead conglomerates to centralize control of the organization to maximize economies of scale and scope. The result is management in an integrated fashion with only minimal concern for separate legal entities and international borders. He argues that "fundamental problems" arise from conflicting approaches to bankruptcy policies across regulators and countries. For example, some authorities may be concerned about maintaining going concern value or financial stability whereas others may focus narrowly on keeping assets within a country or affiliate (ring fencing) to satisfy claimants in their country. He quotes the President's Advisory Group on Financial Markets (1999, p. E6) as stating: "Once a non-bank is placed into bankruptcy, the interests of its creditors, not the market or the economy, prevail under the Bankruptcy Code." Herring (2002, p. 37) argues that as a result of the patchwork system of existing laws and the lack of adequate planning, the failure of an international financial conglomerate would likely result in a "chaotic

scramble for assets.” Rather than risk this outcome, he suggests that the relevant authorities are likely to provide a “bailout” that would “prop up the failing institution.”

The alternative to a bailout, according to Herring (2002, p. 39), is for the regulatory authorities to develop a credible procedure to resolve an international financial conglomerate in “an orderly manner, without systemic spillovers.” This will require addressing all of the legal problems within a country associated with multiple charters as well as the problems with coordinating priority of claimants across country boundaries. As of yet, this has not been done and thus, the lack of a coordinated strategy looms as a major problem, should a large international banking conglomerate fail.

3.3 Resolving large failing banks

A number of rationales may be given for a government bailout of a large failing bank. The subsection 3.2 analyzes these rationales and shows that most are either not valid or easily resolved without a bailout. The risk of contagious runs has been overstated; as historical evidence indicates that deposit runs typically occur at banks that are already insolvent. The credit exposure of other banks is best managed by existing policies designed to limit banks’ exposure to each other. While a few loan customers of a failed bank may have problems obtaining new loans, most borrowers should be able to obtain adequate funding. Finally, no reputable economist seriously argues that we should provide a subsidy to our large banks through implicit guarantees.

Although most of the rationales for a bailout are not supported, the resolution of a large failing bank would not be a trivial undertaking. The first subsection below discusses the importance of having a well-developed plan for such a resolution. The following subsections consider two issues raised in section 3.2 that merit further consideration in that plan: the

treatment of credit risk exposure arising as a by-product of service provision and the treatment of operations that are affiliated with the bank, but over which the FDIC may not have legal jurisdiction, in the event the bank is resolved.

3.3.1 The importance of planning

An important part of successfully resolving one of the largest banks is to have an explicit, carefully thought through plan. The sheer size and complexity of the largest banks will result in a variety of complications, such as quickly identifying which liabilities are insured or collateralized, understanding the risk management system, and understanding the relationship and importance of the bank's various foreign operations and non-bank affiliates.²⁹ An important part of the resolution plan will be the continuation of the operations of the failed bank through a bridge bank to minimize the loss of bank lending and maintain the provision of deposit and other services.³⁰

While developing an explicit plan to resolve a failed bank is essential to avoiding a bailout, announcing a credible plan well in advance is also critical. Failure to announce such a credible plan could result in market disruptions that may arise from uncertainty about the status of claims at the failed bank. More importantly, failure to announce a credible plan could adversely impact other banks by causing market perceptions of the value of the government's

²⁹ Moreover, Kaufman (2004b, p. 68) argues that absent a plan, political pressures at the moment of crisis will overcome any ability of policy-makers to stand back and develop a plan.

³⁰ The focus of this paper is on the resolution of a single large bank, in parallel with the risk of failure of a single large housing enterprise. Ideally, supervisors will work to insure that large bank failures are isolated events that can be dealt with individually. However, numerous banking systems have experienced systemic collapses in which a large fraction of the banking systems capacity is impaired at the same time. Such systemic collapses magnify the need careful planning and preparation in advance of the collapse, so that supervisors may minimize the cost to their country's economy and taxpayers. Kane (2001, 2004) discusses the issues involved in resolving systemic banking crisis.

implied guarantee of the liabilities of very large banks to plummet.³¹ If a very large bank is closed under an unannounced plan that does not guarantee the failed bank's liabilities, market participants are likely to reduce the value of their claims on other banks by the amount they had assigned to the implicit guarantee. At best, the sudden devaluation of the implicit guarantee would result in a sudden increase in the cost of funds for other banks. At worst, financially weak banks that had relied on the implicit guarantee might face funding problems. Thus, merely developing a plan for resolving a large bank without extending government coverage to uninsured creditors is unlikely to be sufficient, the plan must also be announced to the public and be credible.

Stern and Feldman (2004) point out that disclosing the results of supervisory planning would enhance market perceptions that the supervisors will not follow a TBTF policy which should have the effect of making banks' funding costs more accurately reflect their risk exposure. A benefit of this is that the incentives to engage in moral hazard behavior may be reduced. The one problem that placing uninsured creditors in a more risk bearing position is that the pricing of this risk would likely induce large banks to replace these funds with funds that are either insured or collateralized, hence increasing expected losses to the FDIC and other creditors.³² Possible solutions to this problem include increasing subordinated debt requirements or the establishment of a new requirement that banks issue some minimum percentage of liabilities that are uninsured and uncollateralized.

³¹ See Stern and Feldman (2004, chapter 3) for a discussion of the extent to which bank liability holders perceived an implicit guarantee in the form of TBTF policies for the largest banks.

³² Marino and Bennett (1999) document a decline in the proportion of funding provided by uninsured, uncollateralized liabilities in the periods prior to the resolution of several large banks.

3.3.2 Timely resolution and revised priorities in resolution

A good case may be made that some creditors of a bank should not be made to absorb losses, especially creditors whose exposure arose as a by-product of the bank's provision of important services, such as payments and risk management. However, insulating these creditors from risk does not necessarily imply that the government must bear any associated losses. The insulated creditors would not be exposed to loss so long as they are given priority in bankruptcy and the value of the failed entity's assets is greater than the claims of the insured depositors and remaining uninsured creditors (excluding equity holders and subordinated debt holders). The first condition, that of giving payments and OTC derivatives creditors priority, would require some legal changes but poses no technical difficulty. The second condition depends, in large part, on timely measurement of the economic value of the large failing banks' portfolio and prompt supervisory resolution when that value reaches a pre-specified percent of assets. Ideally, the result of a prompt closure rule will be that virtually all of the losses are borne by the equity holders and subordinated creditors. Only when sudden, very large losses occur should the non-subordinated creditors absorb material losses.

The authors of FDICIA perceived that bank supervisors often fell short of this ideal, forbearing until the failing bank's losses significantly exceeded its capital and imposed losses on the FDIC insurance fund. Thus, FDICIA contains provisions for prompt corrective action that provides a menu of mandatory and discretionary actions to be taken by supervisors as a bank's capital declines. When a bank becomes critically undercapitalized, the supervisors are required to place the institution into conservatorship or receivership within 90 days unless they find that

some other action would better achieve the goal of minimizing deposit insurance losses (12 U.S.C. § 1831o (h)).³³

Unfortunately, FDICIA's PCA as currently implemented contains two serious flaws: (1) generally accepted accounting principles (GAAP) values are used in the capital measure of PCA rather than the relevant economic values, and (2) the accuracy of the accounting values depends largely on the management of individual banks and on the bank's supervisor. Properly measured GAAP values may understate economic values for two reasons: (1) GAAP requires loan losses only to the extent that a loss is probable as a result of past information, and (2) GAAP does not allow recognition of the impact of interest rate changes on the value of a firm's liabilities or its held to maturity asset portfolio. Although the problem with using GAAP rather than economic values is troubling in theory, in most cases the difference between properly measured GAAP values and economic values of bank portfolios would not be large at troubled banks, if GAAP values were properly measured.³⁴ The bigger problem is that bank management is unlikely to recognize losses if it resulted in the bank being classified as critically undercapitalized, so the burden of enforcing honest accounting falls to the bank supervisors. If bank supervisors want to forbear, they need do nothing.

Unfortunately, recent work by Eisenbeis and Wall (2002) indicates that the bank supervisors have not always enforced accurate accounting for losses. Their analysis indicates

³³ The decision to avoid appointing a conservator or receiver is not a decision that can be easily undertaken: both the bank's federal supervisor and the FDIC would have to agree that some other action would better achieve the goal of minimizing deposit insurance losses and document that finding. As a practical matter, the decision not to appoint a conservator or receiver for a critically undercapitalized large bank would require the concurrence of the Federal Reserve because the institution would likely have a very difficult time funding itself and hence be dependent on the Federal Reserve's discount window to meet deposit withdrawals. However, the Federal Reserve is subject to financial penalties if it lends to a critically undercapitalized institution after the fifth day on which the bank became critically undercapitalized under 12 U.S.C. § 347b(b).

³⁴ Or stated differently, when banks fail it is generally because they have large credit losses and those losses are probable.

that the average losses on assets since the PCA provisions of FDICIA went into effect were in excess of 26 percent. Kaufman (2004d) argues that these high level of losses are due, in part, to fraud and gross mismanagement by two banks. But he also points to evidence that the supervisory agencies were “either delayed on their own accord or were delayed by legal or other actions initiated by the target banks for considerable periods of time after the fraud or mismanagement problems were first detected.” Thus, in addition to using economic values for PCA, it would be desirable to backstop PCA’s capital adequacy requirements with an additional, market-based trigger for supervisory intervention, such as the proposal by Evanoff and Wall (2000) or by Wall (1989).

3.3.3 Foreign branches and nonbank affiliates

The FDIC lacks adequate authority to resolve foreign branches of a failed U. S. bank and the agency has no direct authority over the nonbank affiliates. The problems with ring fencing of the assets of foreign branches by their host country supervisor would be reduced by timely resolution and careful consideration of the priorities in bankruptcy. Efforts by foreign supervisors to protect their constituents by ring-fencing the assets would be unnecessary if the bank were resolved before losses must be borne by the creditors. When losses are so large that uninsured creditors beyond subordinated debt and equity holders must absorb losses, the FDIC can offer foreign supervisors a choice: (1) the foreign supervisor may ring-fence the assets in its country, in which case the asset and liabilities of branches in that country would be retained as a part of the original (failed) bank and will not be passed through to the bridge bank, or (2) if the foreign supervisor does not ring-fence the assets, then creditors of the branch would be treated on equal footing with comparable US creditors, implying that many creditors will be passed through to the

bridge bank.³⁵ Clearly, foreign supervisors are more likely to ring-fence assets if they are easy to reach and if the foreign creditors were not going to be treated on an equal basis with US creditors.

The problem of nonbank affiliates of the bank may not be so easily resolved. The integrated risk management and provision of services to customers depends on common ownership of the bank and non-bank entities so that all parties focus on total value creation rather than the value created for their subsidiary. The termination of the holding company's ownership interest in the bank (or nonbank affiliate) breaks such common ownership and with it the incentive to maximize combined profits. The question of the extent to which severing the ownership link would adversely impact the bank deserves further study. If the link is critical to the on-going operation of the bank then it would be desirable to give the FDIC jurisdiction over some or all nonbank operations. This could be done by either forcing some (or all) bank affiliates to be subsidiaries of the bank itself or by giving the FDIC jurisdiction over some (or all) of the holding company subsidiaries in the case of a large bank resolution.

4. Resolving a Housing Enterprise

When a federally insured bank fails, Congress requires the FDIC to resolve the failure at least cost to the deposit insurance fund. However, Congress has not established any goal to be applied in the resolution of a failing housing enterprise and it has not given full resolution authority to OFHEO. Should one of the housing enterprises become insolvent, Congress will be forced to determine the goal(s) of its resolution as a part of determining how to resolve the failure. Below, we summarize OFHEO's existing resolution authorities, compare the specific concerns

³⁵ The key changes in this would be that deposits at foreign branches would be treated the same as domestic deposits. Deposits at foreign branches are currently not considered deposits for the purposes of depositor preference, resulting in foreign deposits having a lower priority.

associated with a housing enterprise failure to those for large commercial banks, and then offer some policy suggestions.

4.1 OFHEO's Existing Authority

OFHEO is generally required to serve as a conservator in the event that one of the housing enterprises becomes “critically undercapitalized” and has discretionary authority to do so if one of the companies is “significantly undercapitalized”.³⁶ However, OFHEO has no authority to serve as a receiver and hence the ultimate resolution of a housing enterprise would have to be determined by Congress.³⁷

OFHEO's lack of receivership authority may not be important if any substantial financial problems at one of the housing enterprises are addressed before the institution became insolvent. Thus, the first part of this subsection addresses the question of OFHEO's ability to address capital inadequacy in a timely manner. If existing powers are not sufficient to ensure that a housing enterprise remains solvent, then the discussion of bank resolution issues above suggests that the priority of the claims on the housing enterprise could be important in apportioning losses among equity holders, creditors, and perhaps even the taxpayer. The second part of this subsection addresses the priority issue.

³⁶ For a “critically undercapitalized” housing enterprise OFHEO may determine, with the written concurrence of the Secretary of the Treasury, not to appoint a conservator if doing so would have “serious adverse effects on economic conditions of national financial markets or on the stability of the housing finance market” and the public interest would be better served by taking some other enforcement action (12 U.S.C. § 4617(a)(2)). Also, in the event that OFHEO used its discretion to appoint a conservator in the case of a “significantly undercapitalized” housing enterprise, the institution may ask within 20 days for a judicial review to terminate the conservatorship by the U.S. District Court for the District of Columbia. The standard of review is whether the decision to appoint a conservator was “arbitrary, capricious, an abuse of discretion, or otherwise no in accordance with applicable laws” (see 12 U.S.C. § 4616(b)(6) and 12 U.S.C. § 4619(b)).

³⁷ Regulatory oversight for the housing enterprises has been an active legislative topic. In April 2004, the Senate Banking Committee reported out a bill (the Federal Housing Enterprise Regulatory Reform Act) that would create a new regulator and provide it with additional authorities. Among these is the ability to place a housing enterprise in conservatorship or receivership if it is “critically undercapitalized”, although Congress would retain a 45-day option to disapprove receivership.

4.1.1 Authority to address capital inadequacy

The housing enterprises are currently subject to three statutory capital standards around which OFHEO's system of prompt corrective action is built. These are: a *minimum capital standard* requiring each institution to hold total capital equal to at least the sum of 2.50 percent of the book value of on-balance sheet assets plus 0.45 percent of off-balance sheet guarantees; a *critical capital standard* which is total capital equal to at least the sum of 1.25 percent of on-balance sheet assets plus 0.25 percent of off-balance sheet guarantees; and a *risk-based capital standard* under which each institution must hold enough capital to cover the credit (default) and interest rate risks inherent on and off the balance sheet plus another 30 percent of this sum for management and operations risk.³⁸ Similar to banks, the capital classification standards for the housing enterprises are “adequately capitalized”, “undercapitalized”, “significantly undercapitalized”, and “critically undercapitalized”; with each classification tied to the three capital standards.³⁹ Specifically, an adequately capitalized housing enterprise holds enough capital to meet all three standards; an undercapitalized institution meets the minimum and critical capital standard but not the risk-based standard; a significantly undercapitalized institution doesn't meet either the minimum or risk-based capital standards but does meet the critical standard; and a critically undercapitalized institution fails to meet any of the three standards.⁴⁰

OFHEO's authority to appoint a conservator for either a significantly or critically undercapitalized housing enterprise could prevent a financially distressed institution from becoming insolvent in some scenarios. In particular, conservatorship is likely to be sufficient if: (1) the losses

³⁸ The risk-based standard is based on an OFHEO-developed stress test model, the broad parameters of which (including the 30 percent add-on) are dictated by statute.

³⁹ Banks also may be classified as “well capitalized”.

⁴⁰ See the U.S. General Accounting Office (2001) for a comparison of the version of PCA adopted for the bank supervisors with the version adopted for OFHEO.

occur over a long enough period of time so that OFHEO has an opportunity to intervene, (2) OFHEO determines in a timely manner that the institution is becoming financially distressed, (3) OFHEO has adequate authority to act in response to that finding, (4) OFHEO does not engage in supervisory forbearance, and (5) the conservator (likely OFHEO) is able to change the distressed institution's portfolio in a way that prevents the insolvency.

The length of time over which losses would occur depends on the nature of the shock or shocks that generates the losses. The housing enterprises are diversified in the sense that they are not excessively exposed to credit shocks in any particular region of the country. However, their concentration in mortgage-related assets does expose them to the remote possibility of a nationwide negative shock to housing prices, although such developments typically evolve over a considerable period of time with variation by geography. The other major exposure of the housing enterprises, to interest rate shocks, is also not diversifiable but can be hedged. If the housing enterprises do not maintain adequate hedges then a large sudden loss could occur before OFHEO intervenes.

OFHEO's ability to identify a distressed institution appears to be at least equal to that of the bank supervisors. For instance, OFHEO receives regular reports on the market value of both housing enterprises. The availability of this information is extremely valuable since GAAP does not permit the recognition of changes in the market value of financial assets designated as "held to maturity" or revisions to the value of liabilities. While the market value reports received by OFHEO necessarily rely on model estimates, those estimates are likely to be less dependent on subjective judgments than are the valuation of many types of bank loans.

Like the bank supervisors', a book value measure of capital is used in OFHEO's PCA. This again raises the question of how well this measure reflects the actual economic solvency of the institution, although OFHEO's risk-based capital standards should, in principle, reflect changes in

market value. Nevertheless, since OFHEO's minimum and critical capital standards contain no such adjustment, a housing enterprise with book capital over 1.25% of assets (plus 0.25% of off-balance sheet guarantees) would not automatically become classified as critically undercapitalized -- even if it had significantly negative economic net worth. However, the director of OFHEO could rely on other provisions (i.e., provisions that are not part of PCA) to appoint a conservator, such as those that permit the Director of OFHEO to appoint a conservator if it is unlikely that the troubled enterprise will "replenish its core capital within a reasonable period" (12 U.S.C. § 4619(a)(1)(B)(ii)).

Whether OFHEO would engage in supervisory forbearance should a housing enterprise become economically insolvent cannot be known. What can be done is to note that the bank supervisors have often engaged in forbearance and ask whether the institutional features of OFHEO make it any more or less likely they will forbear than the bank supervisors. Unfortunately, two important institutional features make it more likely that OFHEO will forbear. First, each of the bank supervisors is responsible for over 900 institutions, so that the closure of any given bank will still leave the supervisor with many other institutions to supervise. In contrast, OFHEO only supervises two institutions each of which is among the five largest in the U.S. If a housing enterprise were to fail, it would be a major news and political event and because of this, public scrutiny would be intense and ultimately, the agency's size and importance may decline. Second, unlike the bank supervisors, OFHEO requires an annual Congressional appropriation to fund its operations.⁴¹ This implies that the legislature would have the opportunity to condition the budget on the agency taking certain actions (or inactions).

⁴¹ The closest example to a bank supervisor depending on Congressional appropriations occurred when the Federal Savings and Loan Insurance Corporation (FSLIC) and the Resolution Trust Corporation (RTC) required a Congressional appropriation to fund its resolution of insolvent thrifts. According to Kane (1990), Congress's failure

Finally, whether OFHEO could prevent insolvency (even with timely intervention) would depend on the underlying cause of the housing enterprise's financial problems, the skill of the conservator, and macroeconomic events outside the conservator's control. If the problem facing the housing enterprise is inadequate hedging, the conservator might be able to remedy this problem quickly. If the problem lies elsewhere, such as with internal controls, the conservator may need a long time to adequately remedy the situation. Macroeconomic events, such as movements in market interest rates, could either help or hamper the recovery.

Thus, while there are plausible scenarios under which OFHEO could use its conservatorship power to prevent the insolvency of a housing enterprise, there are other plausible scenarios where this would not happen. If a housing enterprise were to become insolvent, the lack of clear receivership power and a well-developed plan to use that authority may leave the government little choice but to bail out the failed institution.

4.1.2 Current Priority of Claims

The earlier analysis of bank resolution issues revealed that the priority with which claims are settled is an important part of the resolution process. Ordinarily, the bankruptcy court settles the priority of claims for a failed non-financial corporation and a receiver enforces priority for failed bank. However, OFHEO's powers are limited to those of a conservator which "shall have all the powers of the shareholders, directors, and officers of the enterprise under conservatorship and may operate the enterprise in the name of the enterprise" (12 U.S.C. § 4620(a)). However, Carnell (2004) notes that this provision does not give OFHEO the authority to force debt holders to exchange their claims for equity or to accept less than full payment. Thus, Carnell (2004)

to provide FSLIC and RTC with the required funds in a timely manner delayed the resolution of many insolvent thrifts.

argues that the “insolvent GSE would remain adrift in legal uncertainty until Congress enacted special legislation.”⁴²

4.2 Potential Issues

While the issues associated with resolving a failing housing enterprise are similar to those for large banks, there are some important differences in the nature of their assets and liabilities and in their participation in financial markets. These differences could have implications for how a housing enterprise should be treated in the event of insolvency. For example, housing enterprises are not subject to deposit runs and do not provide payments services. Hence, there may not be the same urgency to resolve a housing enterprise failure overnight -- as there is in the case of a large bank failure – in order to ensure continuity of payments services. Moreover, unlike banks, housing enterprises are not major securities dealers, at least outside of the market for mortgage-backed securities. Thus, concerns about the importance of large banks to the functioning of markets that serve as a primary channel for monetary policy, or that otherwise rely on the creation of short-term credit exposure, are not germane. The remainder of this section explores the remaining issues in more detail.

4.2.1 Direct Credit Exposure

The housing enterprises create direct credit exposure for investors through their debt issuance and credit guarantees of mortgage-backed securities. In the current resolution environment, in the event of financial distress, it is likely that the value of housing enterprise obligations would trade at prices and volatilities that reflect some probability of a government bailout. In this case, this ambiguity would be disruptive to investors that hold these obligations as liquid investments

⁴² U.S. Office of Federal Housing Enterprise Oversight (2003, p. 100) suggests that, in the absence of a statute establishing priority among claimants or a process for allocating losses, market participants could be uncertain about the losses they would bear in some scenarios. The report also goes on to note that even in a scenario where the average loss rate of investors is low, the “total dollar amount of the [E]nterprise’s losses could be substantial and distributed unevenly among different classes of investors.”

to the extent that the instruments would sell at discounts that might vary widely as news pertaining to the financial distress was disseminated. Commercial banks would appear to be particularly vulnerable to this kind of spillover effect from a housing enterprise failure.

Frame and Wall (2002) show that, as of year-end 2000, U.S. banks held particularly large concentrations of government-sponsored enterprise obligations (largely those of Fannie Mae and Freddie Mac): 50 percent of banks held such obligations in amounts that exceed their net worth, although most of these institutions were very small.⁴³ Ultimately, whether these investment concentrations in housing enterprise obligations by depository institutions are important depends on the expected loss given default.

Whether banks' direct credit exposure could have such a major impact on the banking system depends in large part on the magnitude of the losses and the process for allocating losses. If the losses to creditors are small, the threat of significant impairment to banks' capital is limited. The problem also depends on the process for allocating losses. If the priority of claims (or equivalently the loss allocation process) are well specified and understood by market participants, they will be better able to value the failing housing enterprises' securities and identify the subset of banks truly at risk of having their capital impaired.

4.2.2 Credit and Liquidity Risk from OTC Derivatives

The housing enterprises are important players in both the mortgage and interest rate derivatives markets that have important linkages to the government bond market. Consequently, a case can be made that certain resolution actions involving a housing enterprise could have substantial adverse consequences for the operations of some important financial markets and for the economy.

⁴³ Kulp (2004) assesses the exposure of FDIC-insured institutions to privatization of Fannie Mae and Freddie Mac and finds minimal impact, although the analysis doesn't consider the impact in the case of financial distress at either or both of the companies.

Although Fannie Mae and Freddie Mac are not OTC derivatives dealers, they are very large users of these contracts when hedging their portfolios. Both institutions rely heavily on “dynamic hedging” whereby they rebalance their portfolios in response to changing interest rates which, in turn, influences the duration of their mortgage-assets through changes in expected prepayment behavior (U.S. Office of Federal Housing Enterprise Oversight 2003; Jaffee 2003).⁴⁴ If one of the housing enterprises became insolvent, their regular derivatives counterparties may refuse to deal with them unless insulated from any risk. Indeed, depending on the default conditions included in the OTC derivatives contracts, some dealers may seek to close out their existing contracts to limit their exposure.⁴⁵ Dealers that agree to enter into new derivatives positions could be protected from credit risk if the insolvent enterprise pledged collateral to secure the contracts, but doing so would give these claimants priority over existing claimants.

The problem for the housing enterprise’s counterparties arises from the large size of each institution’s net position in the derivatives market. Although the large dealer banks have larger overall OTC derivatives books, their books tend to be spread both across different underlying claims (such as derivatives on interest rates, exchange rates, and commodities) and across both long and short positions. Given that the housing enterprises primary concern is interest rate risk, their derivatives positions would generally be expected to consist of a large proportion of interest rate derivatives. Moreover, both Fannie Mae and Freddie Mac have found that they can reduce their cost of funding by issuing shorter maturity debt and using the derivatives market to extend the effective maturity of that debt. As a consequence, both housing enterprises tend to have large net positions hedging this risk. For example, the housing enterprises would generally be

⁴⁴ Both housing enterprises also use “static hedging” under which they issue straight (non-callable) and callable long-term debt to hedge the exposure arising from their mortgage holdings. The relative importance of dynamic and static hedging varies over time based on a variety of considerations.

⁴⁵ See Bliss (2003a) for a discussion of close-out clauses in OTC derivatives.

expected to have a portfolio of interest rate swaps that is heavily weighted towards receiving a payment based on a short-term (variable) interest rate and in return paying a long-term (fixed) rate.

One possible systemic concern is that of the potential credit risk to OTC derivatives dealers from the failure of a housing enterprise. However, the dealers will not have credit exposure to the housing enterprises under all interest rate scenarios and would not have any exposure if their positions are fully collateralized. Since OTC derivative contracts are “zero-sum”, the dealer would only be exposed to risk if net present value of the contract is negative to the housing enterprise—an event that is most likely if interest rates fall given that the housing enterprises tend to receive floating rates on their swaps -- and even then only if the exposure is not collateralized.

One way that a dealer with an uncollateralized exposure to the housing enterprise might seek to limit credit losses would be to declare a “credit event” after which all the derivatives contracts between the dealer and the housing enterprise would be marked-to-market, the values netted, and a single payment would be due from the party that is a net creditor (Bliss 2003b, p. 15).⁴⁶ One advantage to the dealer of declaring a credit event and closing-out the contract is that it eliminates the risk that the dealer’s credit exposure will increase due to a change in market prices. However, as Kaufman (2004a) notes, sudden close-out of the contracts would pose another set of problems. Dealers in the OTC derivatives market use other derivatives and the cash market to hedge the exposure arising from their contracts with the housing enterprises. Sudden termination of the derivatives contracts would leave the dealers unhedged, forcing them to quickly re-establish those positions with other counter parties – an unlikely possibility – or liquidate their other positions. Whether a dealer would close out a derivatives contract with a

⁴⁶ Whether the dealer could declare a credit event would depend on the terms specified in the derivatives contract.

housing enterprise would depend not only on its credit exposure but also the cost of reestablishing hedges and/or liquidating other positions.

Thus, the housing enterprises' reliance on derivatives to hedge their interest rate exposure is less of a systemic concern than that of the failure of an OTC derivatives dealer. While serious problems are possible in some interest rate scenarios, these risks may be substantially reduced via the use of collateralization agreements.

4.2.3 Loss of Service

U.S. Office of Federal Housing Enterprise Oversight (2003) provides a detailed discussion of systemic risk as it may pertain to the housing enterprises.⁴⁷ In the event that a housing enterprise experiences financial difficulties – and these difficulties are seen as transitory -- the OFHEO report suggests that the mortgage market impact should be muted by an increase in business activity at the healthy institution. The fact that most large mortgage originators conduct business with both Fannie Mae and Freddie Mac suggests that a demand-side transition could be smooth; although on the supply-side this will depend on the amount of new business, especially as it pertains to how quickly the healthy housing enterprise could raise new equity capital.

The OFHEO report does, however, provide another scenario under which the financial distress at a housing enterprise is severe, resolution and government bailout is highly uncertain, and such conditions serve to weaken the financial positions of other financial institutions that have significant exposure to that housing enterprise. This would arise because of credit concerns, which in turn lead to a significant reduction in liquidity in the markets for mortgage securitization. While such a situation could be disruptive to mortgage markets, the problem for

⁴⁷ The remainder of this discussion focuses on systemic risks emanating from either (or both) Fannie Mae or Freddie Mac. Fahey (2003) and U.S. Office of Federal Housing Enterprise Oversight (2003) suggest that, because of their GSE status, the housing enterprises could act as a source of strength to financial markets in the face of external shocks.

creditors is not a concern about the quality of the institution's assets, but rather is the uncertainty about the manner and speed with which a housing enterprise failure would be resolved.

Nevertheless, the "loss of service" shouldn't be of particular concern so long as a formal, transparent resolution process is put into place that attempts to ensure that the failed institution is reorganized rather than liquidated. Any disruptions would be very short lived as other firms picked up the slack. Depository institutions, for example, could use other methods: 1) funding mortgages on their balance sheets with, say, Federal Home Loan Bank advances, 2) selling mortgages directly to other intermediaries, such as the Federal Home Loan Banks, or 3) structuring a "private-label" asset securitization.

4.2.4 An Intended Subsidy?

As noted above, Fannie Mae and Freddie Mac operate with several statutory and regulatory benefits; and these benefits are clearly intended to subsidize their role in residential mortgage markets. The most valuable of these subsidies is the implicit federal guarantee of their liabilities, which results in the government's bearing some financial risk. In crafting an appropriate resolution policy, one should consider whether such indirect subsidization is economically efficient and also whether an alternative subsidy would be more socially desirable.⁴⁸

There is a reasonable theoretical basis for the existence of positive externalities that would support government policies to encourage homeownership. A standard set of contracting/asymmetric information problems exist between landlord and tenant, which are internalized when a renter becomes an owner-occupier. This, in turn, may result in direct benefits to the parties themselves, as well as indirect benefits to the neighbors to the extent that the home is better maintained. The natural linkage to policy is to have tightly focused programs

⁴⁸ There is no parallel concern about TBTF constituting an intended subsidy for the largest banks. Indeed, to the extent the subsidy element of TBTF is a factor in public policy discussions, the subsidy is regarded as creating an unfair position for smaller banks that do not benefit from a similar implicit guarantee of uninsured liabilities.

that encourage wealth-constrained households, who may be on the margin between renting and owning, to become first-time buyers. Moreover, such programs should be on the federal budget and hence more transparent and straightforward to value.

However, there is reason to be skeptical that the social benefits of subsidizing the housing enterprises exceed the attendant social costs. The social costs associated with the housing enterprises arise from: 1) the inefficiencies associated with delivering the subsidy indirectly, 2) the resource allocation inefficiencies associated with subsidies generally, and 3) the contingent liability to the government. Studies suggest that the housing enterprises retain a non-trivial portion of the subsidies (U.S. Congressional Budget Office 2001, 2004; Passmore 2003).⁴⁹ As for the subsidies that are passed on to homebuyers, these are broad-based and large (in dollar terms) and hence may well result in resource allocation inefficiencies within the economy generally, resulting in “overinvestment” in housing.⁵⁰ Moreover, such subsidies may also become capitalized to some extent into house prices. All of this said, the literature suggests that the housing enterprises should have little effect on aggregate homeownership rates given the extent to which they influence mortgage interest rates (Feldman 2002; Painter and Redfean 2002).

An important function of the political system is to reallocate resources to economic sectors favored by the voters’ elected representatives. The primary concern in the case of the housing enterprises, however, is that the subsidy is delivered “off-budget” and hence difficult to measure and control. That is, while housing enterprise subsidies appear to deliver “something

⁴⁹ Outside analysis sponsored by Fannie Mae disputed various assumptions and research methods used in these studies (see, for example, Toevs, 2001; Greene 2004; Blinder, Flannery, and Kamihachi 2004).

⁵⁰ For empirical analyses of “overinvestment” in housing from broad-based social programs, see Gervais (2002), Taylor (1998), and Mills (1987a, 1987b).

for nothing”, the economic reality is that this approach creates a large contingent liability for the federal government, which Frame and White (forthcoming) currently estimate at \$13 billion annually, and potentially perverse “moral hazard” incentives for the housing enterprises themselves. If Congress wishes to subsidize housing, we agree with Calomiris (2001) and White (2003) that the appropriate policy response is to provide direct, on-budget down payment grants to first-time low- and moderate-income homebuyer, an example of which is the American Dream Downpayment Initiative.⁵¹

4.3 Resolving a housing enterprise

Section 2 established the value of having an ex ante plan to resolve large bank and housing enterprise failures at minimum cost to the taxpayers, conditional on avoiding substantial adverse spillovers. Subsequent discussion has highlighted the importance of several steps in the resolution process if these goals are to be obtained: (1) Giving the supervisory agency the mandate to engage in early resolution of a failing intermediary, ideally forcing the intermediary into resolution while its portfolio of assets, liabilities and derivatives still has positive value so as to avoid imposing losses on the taxpayer. (2) Giving the agency clear authority to act as a receiver. (3) Giving the agency the authority to create a solvent bridge organization so that it can continue to provide important financial services. (4) Giving the agency clear priorities for payments of the intermediary’s obligations, with priority given to obligations needed for the continuing operation of the firm until it can be recapitalized and restore operations.

The current procedures for addressing financial weakness at the housing enterprises incorporate none of these four steps. OFHEO has the power to appoint a conservator, which could prove adequate to prevent insolvency in some plausible scenarios, but not in others. Related to this, OFHEO has not been given a set of priorities for paying off claimants, creating

⁵¹ See U.S. Department of Housing and Urban Development (2004).

the potential for severe market disruption, as investors are unsure about the relative priority of different claims. OFHEO has also not been given the power to create a bridge organization to facilitate the continued provision of important financial services.

Finally, no resolution of a housing enterprise is possible without Congressional action. Congress is not designed to move at the fast pace of financial markets; rather it is designed to provide careful deliberation before passing new legislation. In the event that a housing enterprise becomes insolvent, Congress may come under intense pressure to act quickly from both the conservator, which may have problems managing the institutions' risk exposure, and from residential mortgage market participants seeking to end any disruptions. Congress will also be under pressure from various claimants on the housing enterprises, each arguing that either Congress should cover all losses or at least that any losses should be borne by some other class of claimants. Finally, the ability of the other (hopefully solvent) housing enterprise to obtain funding to support the mortgage market likely would also be adversely affected if Congress chose not to honor the implicit guarantee on the failed housing enterprise's obligations. Thus, the current setup appears designed more to create substantial spillover effects and force Congress to mitigate the problems by providing the creditors of a failed housing enterprise with a bailout.

While the existing procedures for a failed housing enterprise have the potential to have a seriously adverse impact on the financial system, force Congress into a quick bailout, or both, the basic steps to ensuring a more sound system are clear. First, the version of PCA applied to the housing enterprises should be strengthened. Housing enterprise capital should be measured in economic value rather than in historic cost terms (a recommendation made earlier for bank PCA as well) and the ratios used to determine capital inadequacy should be raised, especially the critical capital level. These capital levels should be augmented by a required tranche of

subordinated debt. The market signals emanating from this subordinated debt may also be useful as an indicator of likely supervisory forbearance for situations where a housing enterprise capital is clearly inadequate. If OFHEO has adequate authority and follows prompt action, concerns about the direct credit exposure of other financial intermediaries to a failed housing enterprise should be limited.

The second step is to give OFHEO the power to act as receiver. OFHEO should be directed to create a bridge housing enterprise (along the lines of a bridge bank) with further instructions to return the institution to private ownership as soon as practical. The bridge housing enterprise would continue the operations of the failed housing enterprise, and assume its good assets and verifiable liabilities. The remaining assets, equity and liabilities would remain with the failed enterprise, with the liabilities being repaid as the assets are liquidated. If Congress wanted to insure that the legislature had sufficient time to consider the need for continuing the operation of a housing enterprise, OFHEO could be directed to wait for some minimum period of time before returning the enterprise to private ownership.

As part of its giving OFHEO receivership power, Congress should also specify the priority with which claims on the failed enterprise will be paid. Our analysis suggests that derivatives counterparties should be given top priority in order to preserve the bridge housing enterprise's ability to manage its risk exposure. Next in priority would be the holders of housing enterprise mortgage-backed securities and senior bonds (treated with equal priority), with mortgage-backed securities holders maintaining an explicit collateral interest in the underlying assets. Whether to make any other adjustments in the relative priority of the mortgage-backed claims versus the senior debt is a question that merits further consideration. The remaining claimants in order of priority would be the subordinated creditors and equity holders.

Finally, if Congress wishes to subsidize new home ownership it should do so by giving direct aid to first time homebuyers with low to moderate incomes. Such a subsidy would maximize the social benefits obtained from providing a subsidy to homeownership without: providing a subsidy to the owners of the housing enterprises, creating an incentive for the housing enterprises to take excessive risk, or creating the risk of substantial loss to taxpayers.

Although we believe the current process for resolving a failed housing enterprise is flawed, Fannie Mae and Freddie Mac have expressed reservations about giving OFHEO the power to be a receiver for the enterprises. One of the concerns given by Fannie Mae CEO Raines (2004) in testimony before Congress was that: “Only Congress should decide if there is no longer a need for this instrument of national policy to support homeownership.” However, our proposal would address Raines’ concern by continuing the operation of the failed housing enterprise, first as a bridge housing enterprise and later as a privately owned housing enterprise. Congress would only revoke the failed housing enterprise’s charter upon an affirmative vote to do so.

The second concern expressed by Raines (2004) is that receivership power would create uncertainty in the markets for housing enterprise debt securities. Raines (2004) argues that:

“enacting a receivership provision unfairly imposes new risks on holders of existing obligations that they could not have anticipated at the time they purchased these obligations. The imposition of these risks, therefore, could undermine the pricing of existing obligations and cast uncertainty on how new obligations should be priced.”

This argument seems to be largely a transition concern during the imposition of an effective receivership regime as existing securities may be repriced (on a one time basis) to reflect any perceived changes in risk arising from the statutory change. Thereafter, the pricing of housing

enterprise securities should more accurately reflect their risk. We are skeptical of the argument that the holders of existing obligations should not be subject to this one time repricing because they are unaware of their risk of loss. The securities issued by the housing enterprises already state that the obligations are not those of the federal government, which puts their holders on legal notice that they are subject to the loss of principle and interest according to a process determined by Congress at a later date. They may have chosen not to believe the legal notice that they were at risk, believing instead that federal government has granted an implicit guarantee to the housing enterprises' debt obligations. However, given that the bondholders have been given legal warning of their risk exposure, we do not see any reason why Congress must wait until a housing enterprise is insolvent to determine the process for allocating the losses. Further, should Congress agree with Raines' concern, a simple solution is available: Priority could be given to those obligations outstanding at the time OFHEO is given receivership power over those securities subsequently issued by a housing enterprise. This would protect existing security holders from ex post changes in priority and remove uncertainty on the part of buyers of new securities as to where they would stand if the housing enterprise became insolvent.

5. Conclusion

The process for resolving a large bank or housing enterprise is important to both the financial system and to taxpayers. The current system for resolving failed banks has been refined through the handling of a large number of small banks failures. The bank system has most of the basics needed for effective resolution: a clear process by which banks can be forced into resolution, an agency with clear authority to act as receiver, a variety of resolution options that can be tailored to the specific situation, and a clear mandate to minimize the expenditure of government funds on the resolution. The system should be further strengthened to deal with large bank failures by

making several adjustments to this authority, such as strengthening the process for forcing banks into early resolution, which includes the use of market value triggers for PCA, and more careful attention to the setting of the priority of claims in bankruptcy. The system should also be strengthened by the announcement of a credible plan that eliminates market participants' perception of an implied guarantee. Finally, given the unacceptable loss performance of the banking agencies since PCA was implemented, better incentives should be put in place for banking agencies to avoid forbearance.

There is no established process for completely resolving an economically insolvent housing enterprise and there is no guarantee that OFHEO's conservatorship power will be sufficient to prevent such insolvency. If a housing enterprise became insolvent, that could lead to significant market disruption, and Congress would likely be forced to bail out the failed housing enterprise's creditors. Fortunately, the process by which banks are resolved—especially with our suggested improvements in large bank resolution--provides a road map for the creation of an effective process for resolving a failed housing enterprise. We fail to find a compelling reason for not following that roadmap. Banks and the housing enterprises are sufficiently similar so that the process that has been designed to address problems with the banks would address similar concerns with the housing enterprises. The one major difference between the two is that some may regard the implied guarantee as an intended subsidy to residential mortgage borrowers. However, if this subsidy were provided directly to those borrowers that most need it (low to moderate income, first time home buyers) rather than via an implicit guarantee, then the gains from subsidizing residential mortgages could be obtained without providing a subsidy to the housing enterprise owners, without creating an incentive for the housing enterprises to take

excessive risk without the risking financial market disruption, and without imposing very large contingent liabilities on the taxpayers.

6. Postscript

Two days after the original release of this working paper, OFHEO issued a preliminary report of its findings of a special review of Fannie Mae's accounting policies, internal controls, and financial reporting processes. U.S. Office of Federal Housing Enterprise Oversight (2004) detailed a number of serious concerns, which are first summarized and then evaluated in the context of our previous policy suggestions. We then examine some additional questions that have been raised subsequent to the release of OFHEO's report. Necessarily, this section focuses disproportionately on the housing enterprises.

6.1 Summary of U.S. Office of Federal Housing Enterprise Oversight (2004)

OFHEO's preliminary report detailed specific concerns on the framework and conditions of Fannie Mae's accounting policies and internal controls, with a particular focus on deferred price adjustments and derivatives and hedging activities. The report concludes that Fannie Mae has misapplied GAAP (particularly SFAS 91 and SFAS 133) in a manner that was pervasive and reinforced by management. As a result, OFHEO states that "[t]he matters detailed in this report are serious and raise concerns regarding the validity of previously reported financial results, the adequacy of regulatory capital, the quality of management supervision, and the overall safety and soundness" of Fannie Mae.

With respect to SFAS 91 (Accounting for Purchase Discount and Premium and Other Deferred Price Adjustments), OFHEO concluded "the accounting used by Fannie Mae for amortizing purchase premiums and discounts on securities and loans as well as amortizing other deferred charges is not in accordance with GAAP". To that end, Fannie Mae appears to have

granted itself inordinate flexibility in determining the amount of income and expense recognized in any accounting period resulting in a “cookie jar” reserve to smooth earnings.

OFHEO also concluded that Fannie Mae’s accounting for large parts of its derivative portfolio has not been in compliance with SFAS 133 (Accounting for Derivatives Instruments and Hedging Activities) since 2001. SFAS 133 requires that all freestanding and certain embedded derivatives be carried on the balance sheet at fair value. Changes in these fair values are, in turn, recognized in earnings. However, under GAAP, Fannie Mae would not recognize changes in the fair value of most of the rest of its portfolio. Thus, the simplest application of SFAS 133 would have resulted in substantial increases in the volatility of Fannie Mae’s GAAP earnings and capital; volatility that exceeded the volatility of the economic value of its overall portfolio. SFAS 133 provides firms with two alternative methods of hedge accounting that reduce the volatility of income: fair value hedges and cash flow hedges. The criteria for qualifying for the use of hedge accounting are difficult to implement for firms engaged in large-scale and sophisticated hedging activities, like the housing enterprises. One key criteria is that the derivative be designated as the hedge of a *specific* instrument at the time it is entered into. This criterion would be awkward for Fannie Mae to meet, as modern hedging techniques emphasize the importance of the overall portfolio and not individual pieces. A second important criterion is that of demonstrating the derivative is an effective hedge of the specific asset or liability both at the time the derivative is entered into and during the life of the contract. Meeting this requirement would have required extensive, on-going evaluation of the effectiveness of each derivative contract in hedging changes in the value of a specific instrument.

Thus, the adoption of SFAS 133 posed a dilemma for Fannie Mae, either engage in a difficult, large scale effort to meet the requirements for hedge accounting, or accept a (largely

artificial) increase in volatility of net income from its derivatives portfolio. What the OFHEO report found is that Fannie Mae exercised a third option: using hedge accounting for the bulk of its derivative portfolio, while not complying with all of the requirements set for hedge accounting in SFAS 133. OFHEO reports that this process was described by some in Fannie Mae as “known departures from GAAP” and others as “practical application of GAAP.” As a result of Fannie Mae’s departure from the requirements of SFAS 133, OFHEO argues that certain Fannie Mae transactions and the “ineffective” portion of other transactions should be recorded at their fair values with any changes in value recorded in earnings. OFHEO concludes that the “possible reclassification of such amounts into retained earnings could have a significant effect on Fannie Mae’s regulatory capital”.

In terms of accounting oversight, the OFHEO report concluded that poor accounting policy development, key person dependencies, and poor segregation of duties were major contributors to the accounting failures and safety and soundness failures that it detailed.

Following the issuance of the OFHEO report, the supervisor reached an agreement with Fannie Mae’s Board of Directors that requires immediate action to address the improper accounting and inadequate controls detailed.⁵² The agreement requires Fannie Mae to: 1) implement correct accounting treatments to henceforth comply with SFAS 91 and SFAS 133, 2) protect the existing capital surplus and move to a targeted capital surplus equal to 30 percent above their minimum required capital, and 3) review staff structure, separate certain key business functions, and implement policies to ensure adherence to accounting rules and internal controls.

⁵² This agreement can be obtained at: <http://www.ofheo.gov/media/pdf/fnmagreement92704.pdf>.

OFHEO followed this agreement with an announcement that it would begin reviewing Fannie Mae's capital classification on a monthly, rather than quarterly, basis.⁵³

6.2 Evaluation of OFHEOs Findings in the Context of Our Analysis

U.S. Office of Federal Housing Enterprise Oversight (2004) raised the prospect that Fannie Mae might fail the minimum capital requirement if its balance sheet were restated to conform to GAAP. Moreover, according to Weil (2004), Fannie Mae's core capital as of year-end 2003 may have been overstated by as much as \$7.5 billion.⁵⁴ This figure, taken together with those reported for actual core capital and minimum required core capital at that time (\$34.4 billion and \$31.5 billion, respectively), suggest that Fannie Mae was actually undercapitalized by \$4.6 billion. As noted above, Fannie Mae has agreed to protect this surplus and increase capital within 270 days to exceed 30 percent of its minimum capital requirement.

While OFHEO's report raises some questions about Fannie Mae's current capital adequacy, it raises even more important questions about the current process for assessing capital adequacy and the implementation of PCA. As discussed earlier, the relevant measure of capital is its economic value and not its accounting value. The reason is that when settling creditor claims of a troubled institution, the economic value of its assets provides an estimate of the resources available to pay the creditors, whereas book values are a very poor approximation. That said, correcting the derivatives accounting violations identified by OFHEO would result in a reduction in Fannie Mae's accounting capital, but conceptually would have no impact on its economic capital. However, the problems with fair value accounting for derivatives that do not

⁵³ This announcement can be obtained at: <http://www.ofheo.gov/media/pdf/capclass93004.pdf>.

⁵⁴ This is because Fannie Mae's deferred losses on cash flow hedges totaled \$12.2 billion, while another \$4.7 billion in deferred gains existed at that time.

meet the documentation standard of SFAS 133 are symmetric and could have important implications for Fannie's ability to grow without regulatory concern.⁵⁵

The problems with using the book value of capital, rather than its market value, are amplified by the very low Congressionally mandated minimum and critical book value capital adequacy ratios used for purposes of housing enterprise PCA. The potential \$7.5 billion overstatement of Fannie Mae's accounting capital represents only 0.8 percent of Fannie Mae's reported assets as of June 30, 2004, but 21.8 percent of Fannie Mae's core capital. Even relatively small errors in measuring the values of Fannie Mae's assets or liabilities could mean the difference between Fannie Mae either meeting the minimum regulatory standards or not (or even the difference between solvency and insolvency).

The potentially large gaps between book and economic value suggest that if OFHEO is to continue using book value ratios, a substantial increase in the minimum and critical capital ratios is necessary. The existing ratios seem to be largely premised on the view that the housing enterprises are relatively low risk ventures. However, if book capital ratios are used, then the minimum and critical capital ratios must take account not only of the risk of their portfolios, but also the potentially large differences between book values and economic values.

As we argue above, a better approach would be to replace book value capital adequacy requirements with market value requirements both for assessing capital adequacy and the critical PCA trigger values. The change should be made for both banks and housing enterprises.

Although the measurement error would be reduced by using market values, it would not be

⁵⁵ That is, the adjustments to GAAP equity could easily have been to increase GAAP capital (without a comparable increase in economic capital) if interest rates had moved in a different direction during the period in question. If GAAP capital had been increased and Fannie Mae had not followed hedge accounting, the result might have been that Fannie Mae would find itself with GAAP capital in excess of the regulatory minimums even though its economic capital would have been unchanged and could have further expanded its asset base without issuing more capital or without bumping up against OFHEO's minimum capital requirement.

entirely eliminated. Many of the items in the housing enterprises' portfolios are not traded in sufficiently liquid markets and the supervisors would have to rely on estimated values.⁵⁶ Thus, we recommend that the minimum and critical capital requirements for the housing enterprises be somewhat increased -- even if capital is measured in economic terms -- to account for the possibility that the estimated economic value of the portfolio may be overstated due to modeling errors.

One part of the OFHEO report is especially troubling. The report (starting on p. 49) discusses the likelihood that Fannie Mae tested various modeling assumptions to produce the obtain desired results in complying with SFAS 91. Although the resulting distortion of accounting values (if any) were small relative to capital, the precedent of adjusting models and model parameters to obtain desired accounting results is a substantial concern. The problems caused by an institution altering models and model assumptions go beyond its impact on earnings management. Adjustments to model assumptions may also be used to inflate the value of the portfolio to increase an institution's reported GAAP and fair value capital, particularly at times when the institution is having problems maintaining capital adequacy. The experience in the banking industry suggests that the firms least likely to recognize losses are those closest to violating their capital adequacy guidelines.⁵⁷

6.3 Related Issues

⁵⁶ The problem of relying on estimated values is greater for banks than for the housing enterprises, but banks also have substantially higher capital requirements.

⁵⁷ Eisenbeis and Wall (2002) express a related concern with the setting of bank capital adequacy requirements under procedures currently being proposed by the Basel Committee on Bank Supervision, commonly referred to as the Basel II. The internal ratings based model in Basel II (the model to be required of the largest U.S. banks) would require banks to use their own models to estimate the credit risk of their portfolios. Yet the use of internal models to set capital requirements creates an incentive for banks to systematically select models that understate the risk of their portfolios.

The OFHEO report also reminds us to ask a number of questions related to the underlying risk profile of the housing enterprises, as well as the markets' and OFHEOs' ability and willingness to recognize those risks. Since we issued the original working paper, several pieces of new information have become available.

With respect to the underlying risk of Fannie Mae, former Council of Economic Advisors Chair Glenn Hubbard (2004) released a paper sponsored by that housing enterprise. The paper uses a number of econometric models to analyze the probability of failure and risk of economic loss due to the possible failure of Fannie Mae. It then compares these measures to different ones for the 10 largest U.S. banks and bank holding companies. The author concludes that the probability of Fannie Mae failing is very low and likely no higher than that for a large banking organization, while the risk is economic loss is lower.

Economists regularly quibble about the appropriateness of certain assumptions and methodological approaches taken to answer complicated economic questions⁵⁸ – and this paper is no exception.⁵⁹ That said, the Hubbard study may suffer from an even more fundamental shortcoming: the data. Specifically, the problems identified in the OFHEO report about Fannie's accounting, capital adequacy, and the efficacy of its publicly available data could render this analysis meaningless. At this time, it's unclear that one can draw reliable conclusions about either the risk profile of Fannie Mae or its capital adequacy using its publicly reported information.

⁵⁸ An example of this academic jostling is Passmore's (2003) study of the value of government to the housing enterprises, which resulted in subsequent Fannie Mae-sponsored studies by Greene (2004) and Blinder, Flannery, and Kamahachi (2004) challenging the empirical approach taken.

⁵⁹ For example, one interpretation of Hubbard's analysis of Fannie Mae's probability of default is that this probability is low as long as the housing enterprise takes on little or no interest rate risk.

Information about the market's willingness and ability to recognize and price the risks associated with housing enterprises has also become available. Between the time that the OFHEO report was publicly released and the time the agreement between the supervisor and Fannie Mae's Board of Director's was reached there was a great deal of uncertainty about the underlying financial condition of the housing enterprise. This was reflected in a three-day cumulative loss (between September 22-24, 2004) of market capitalization of about 15 percent at Fannie Mae. Remarkably, during this uncertain time, Standard & Poors (S&P) issued a statement that affirmed Fannie Mae's AAA rating on its senior debt, although it placed the enterprise's subordinated debt and "risk to the government" ratings (each AA-) on "credit watch". This suggests, given the recent revelations, that S&P at least still believes that senior debt holders' risk exposure hasn't changed, which could only occur by relying on the belief that the federal government would step in and make these debt holders whole. In other words, this provides evidence that that investors perceive a government guarantee of the housing enterprises, regardless of what is stated on the face of their debt obligations.

Finally, one should examine OFHEO's willingness and ability to recognize excessive housing enterprise risks and to take corrective action. The OFHEO report and timely subsequent agreement between the supervisor and Fannie Mae's Board of Director's (as also occurred in 2003 with Freddie Mac) suggests that OFHEO is doing its job. That said, one should also look back and ask how the housing enterprises' accounting problems, which date back to 1998, persisted for so long. Indeed, if the problems at Freddie Mac had not been revealed to OFHEO by the Board of Director's of that housing enterprise, we might still not have a clue that there were accounting issues surrounding either Freddie Mac or Fannie Mae. Clearly, a major reason is that the agency has been understaffed (particularly in the area of accounting expertise) and

under funded. OFHEO is currently subject to the appropriations process and as such is fair game for political shenanigans. This recently was evidenced by the Senate Appropriations Committee report on a Senate Bill 2825 to fund the Department of Housing and Urban Development, which has suggested a large increase in OFHEO's budget for 2005, while tying the availability of \$10 million of it to the appointment of a new director for the agency.⁶⁰

6.4 Further Recommendations

No organization, including the housing enterprises, can be expected to operate without ever incurring problems. Yet the housing enterprises have grown so large that were one to encounter substantial financial problems, the spillover could have a significantly adverse impact on financial markets if not handled properly. Unfortunately, the weight of the evidence is that investors believe there is a high probability of a government bailout in the event of housing enterprise insolvency, implying government supervision is going to have to assume major responsibility for limiting the magnitude of any problems. The key elements in a government-based system for limiting incipient problems at a housing enterprise are to: (1) require sufficiently high values of estimated economic capital so that the supervisor has time to identify and correct any problem before an institution becomes deeply insolvent, (2) create the ability and incentive for prompt identification of problems and corrective action (up to and including placing a housing enterprise in receivership).

Sufficient capital measured in economic value terms is essential to giving OFHEO time to identify and act on problems, ideally before an enterprise becomes insolvent. As the

⁶⁰ This report can be obtained at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_reports&docid=f:sr353.108.pdf. The HUD/VA Committee recommends 59,208,753 for the OFHEO, which is the same as the budget request and \$19,528,753 more than the fiscal year 2004 enacted level. However, on page 71, the report says that the Committee is concerned that "a lack of leadership and qualified staffing is at the heart of OFHEO's inability to be an effective regulator. Since responsibility must begin with leadership, the Committee is holding back \$10,000,000 until a new director is nominated and confirmed."

revelations in the OFHEO (2004) highlight, the housing enterprises must maintain capital not only sufficient to absorb the financial risks they are taking but also the gap between the economic value of capital and the reported value of equity. If capital is measured in book value terms, as it currently is for the minimum and critical capital levels, then the capital requirements should be substantially increased.⁶¹ However, a better approach would be to use the economic value of capital in the minimum and critical capital tests. Nevertheless, the minimum required capital ratio should be raised even if estimated economic values are used because there are also likely to be errors in measuring economic value, although the required increase should be much smaller.

Early identification of problems is also essential. In most cases the housing enterprises themselves will be the first to identify problems. One small incentive for prompt self-reporting would be to authorize OFHEO to charge the institutions it regulates for the time and effort expended to determine the institution's risk.⁶² More importantly though, is providing OFHEO with the resources and political independence that it needs to be a strong regulator. To that end, we believe that OFHEO's funding should not be subject to the annual Congressional appropriations process.

Finally, we interpret Standard & Poors' response to the OFHEO report (and a subsequent one by Moody's) as consistent with our call for giving OFHEO receivership power, including the authority to establish a bridge housing enterprise. The rating agencies' reaction to OFHEO's report suggests that the marketplace perceives a high likelihood that Congress would appropriate

⁶¹ While more work would be desirable on this subject, as a rough guide to the required increase if capital is measured in GAAP accounting values, we would argue that the critical capital requirement (the requirement that would likely serve as the trigger for conservatorship) should be raised from 1.25% of assets plus 0.25% of off-balance sheet guarantees to somewhere near the current minimum capital level of 2.5% of assets plus 0.45% of off-balance sheet guarantees.

⁶² We would favor the adoption of a similar charge for banks.

taxpayer funds to bailout housing enterprise's creditors should one become insolvent. The likelihood (actual and perceived) of such a bailout would go down substantially, however, if an insolvent enterprise could be resolved without Congressional intervention.

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