How Large Is the Federal Financial Safety Net?

John R. Walter and John A. Weinberg

In the 1980s and early 1990s, U.S. taxpayers paid $130 billion to make good on the federal government's guarantee to protect depositors in thrift institutions (U.S. GAO 1996: 14). The crisis affecting thrifts in the late 1980s exhausted the funds that had been set aside by the deposit insurance agency, and made it necessary for Congress to allocate new funds. This period marked the first major test of the federal deposit insurance system since its inception in 1933. The system was badly stressed, but it did succeed in one sense. Although there were a large number of bank failures, the type of bank runs and widespread panics seen in crises prior to the creation of the Federal Deposit Insurance Corporation (FDIC) did not occur. Deposit insurance gave the average bank depositor a sense of safety not previously enjoyed. With this protection, however, depositors have little interest in paying attention to the riskiness of their banks' lending activities. Many observers argue that a lack of depositor scrutiny contributed to the problems experienced by banks and thrifts in the 1980s.

The government's interest in the safety of private savers and private financial institutions did not begin with the creation of deposit insurance. Indeed, in the earliest years of the republic the government sometimes reallocated the deposits it held with private banks in order to provide additional funding to a distressed institution (Studenski and Kroos 1963: 72–73). Even J. P. Morgan received government assistance in his efforts to rescue troubled institutions in the wake of the panic of 1907. While this episode is often cited as a case in which the government provided no support, the U.S. Treasury contributed

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John R. Walter is Associate Research Officer and John A. Weinberg is Vice President at the Federal Reserve Bank of Richmond. The views expressed herein are solely the authors' and do not represent those of the Federal Reserve Bank of Richmond or the Federal Reserve System.

$25 million at a crucial point to assure the completion of a successful rescue.

The federal government's financial support for private borrowers is not limited to banks and other financial institutions. On some occasions, the government has stepped in to assist large nonfinancial corporations that were in financial distress, as in the bailout of Chrysler in 1980. Government protection for the creditors of nonfinancial corporations arose again in the aftermath of the terrorist attacks of September 11, 2001, with the passage of the Air Transportation Safety and System Stabilization Act, providing up to $10 billion in loan guarantees to the airline industry. In addition, many government programs help individuals receive credit to finance small business development, home purchases, or other endeavors. This assistance is often in the form of loan guarantees under which the government pays the lender if the borrower defaults.

The various forms of federal government support for private borrowers comprise the federal financial safety net. In this article we estimate the size of the safety net. Specifically, we examine the extent to which the liabilities of private market participants are perceived to enjoy federal government guarantees. Our estimate includes a mixture of elements. Some of the liabilities, such as insured deposits, are *explicitly* guaranteed. Others, such as some deposit balances in excess of the limits on explicit deposit insurance and the liabilities of certain government-sponsored enterprises, are *believed* by many market participants to be *implicitly* guaranteed by the federal government. Our approach to implicit guarantees is to ask, "Based on past government actions, what might market participants reasonably expect future government actions to be?"

We estimate that explicitly guaranteed liabilities amount to $5.8 trillion and that implicitly guaranteed liabilities amount to $3.4 trillion, which implies that the total safety net is in the neighborhood of $9.2 trillion, or about 26 percent of total private liabilities. While we believe this figure reasonably suggests the safety net's size, we should emphasize that it is an estimate, including a variety of elements and reflecting our judgment regarding what should and should not be included.

Why does the safety net's size matter? It matters because actual or perceived guarantees can impair the efficiency of the financial system. Guarantees alter economic behavior by increasing people's willingness to take risks. Further, risk taking can become concentrated in those sectors of the economy enjoying the greatest protection. More broadly, resources tend to flow away from parts of the economy with few or no guarantees toward those with substantial coverage. The

ultimate effect can be to limit the growth of income and wealth, and the larger the safety net the greater the effect. Our estimate of the safety net's magnitude suggests that such an effect is a real possibility.

The Federal Financial Safety Net

The federal financial safety net, as we define it, consists of all explicit or implicit government guarantees of private financial liabilities. By private financial liabilities, we mean debts owed by one private market participant to another including the deposit liabilities of banks, thrifts, and credit unions. By government guarantees, we mean a government commitment to protect lenders from losses due to a borrower's default.

Formal programs, such as deposit insurance or the Small Business Administration's loan guarantee program, form the explicit safety net. There have been many cases, however, in which borrowers not covered by formal guarantee programs have received public assistance in paying their debts. Examples include payments to uninsured depositors of failed banks and assistance to large, troubled corporations like Chrysler and Lockheed. Such examples create a public perception that similarly situated borrowers will be assisted if problems arise in the future. We are interested in the effect of the safety net on economic behavior, and when market participants perceive an implicit government guarantee, economic behavior is altered. Consequently, we define the safety net to include both explicitly guaranteed liabilities and liabilities without explicit guarantees that market participants nevertheless are likely to believe the government will protect.

It should be noted that identifying liabilities perceived to have implicit guarantees is a challenging task given the ad hoc nature of past government bailouts. We include liabilities in our measure of the implicit safety net only when our judgment that there is a public perception of protection is supported by other published sources. Hence, while we discuss bailouts of large nonfinancial firms, we do not include the liabilities of such firms in our estimated safety net. In contrast, many observers have written about the likely protection of certain large *financial* firms, and we attempt to take account of such firms' liabilities in our measure.

When we include liabilities in the implicit safety net, we count them as if the market believes that their full value is guaranteed. But market beliefs could be more variable; market participants may believe that some liabilities are only partially protected. At the same time, it is likely that some liabilities that we do not include are per-

ceived to have at least some guarantee. Hence, we do not believe our approach results in an overstatement of the implicit safety net.

We do not address all types of protection that the government provides to private individuals or businesses. Most notably, we are not concerned here with the so-called *social* safety net that includes such programs as Medicaid, Medicare, and Social Security. We also do not include other forms of general assistance like federal disaster relief. One could argue that such types of aid should be included in a measure of the financial safety net since they can certainly affect a recipient's ability to borrow in the private credit market. Income support, for instance, could help an individual repay debts, reducing the risk of default. Similarly, disaster relief programs assist victims in repairing or replacing damaged property that may serve as collateral in debt contracts. These forms of assistance, however, are not tied to specific private liabilities, as is an explicit or implicit government guarantee.[1] We limit our attention to the government's direct participation as a guarantor of private debts.

In addition to issuing guarantees, the government sometimes makes direct loans to private borrowers. Are such loans a part of the safety net? We do not include them in our measure, which focuses on guarantees rather than direct lending. As in the case of general government assistance, direct lending can have effects that are similar to the effects of government guarantees. Access to government loans could make it possible for an individual or business to borrow from private lenders at a reduced cost. Still, our focus is on cases in which the government places itself between private borrowers and lenders by guaranteeing the borrowers' debts.

By limiting our attention to guaranteed debts, we ignore one important type of private financial relationship. Specifically, we do not consider equity investments. To be sure, an investor who buys shares from a business is supplying money to the business. Unlike lending, however, an equity investment does not entitle the investor to a fixed or predetermined payment. Rather, an equity claim is a "residual" claim; its value varies with the fortunes of the enterprise. Guarantees, whether government or private, are typically attached to fixed claims, liabilities that will be considered in default if a certain payment is not made. Our measure of the safety net will be based on fixed liabilities.

[1] Property insurance programs supported by the government, such as federal flood insurance, are different from general disaster relief. When flood insurance is required by a mortgage lender, this form of government backing is tied to a specific financial liability. However, we do not include such programs in our specification of the financial safety net because these programs provide guarantees to the owners of the real property rather than to creditors.

How the Safety Net Affects the Economy

Government guarantees can change the way participants in private financial markets respond to risk. To explain these effects we introduce some basic concepts economists use to analyze risk-taking behavior. Specifically, the concepts of *risk aversion* and *moral hazard* help us discuss how a market economy allocates risk and how government intervention can alter market outcomes. Guarantees have the general effect of increasing the flow of resources to risky activities.

Risk Aversion

Uncertainty is an integral part of all economic activity. A business' profits, for instance, can never be fully controlled or predicted. Most people, however, prefer not to bear risk. That is, people are *risk averse*. A risk-averse person faced with an uncertain prospect will seek to reduce exposure to risk in two ways. First, one can seek to avoid actions with risky consequences. A business seeking to avoid risk, for instance, might shy away from innovative activities or from entering new markets. Alternatively, one can limit exposure to risk by sharing risk with others through insurance or other financial contracts.

Sharing risk through financial markets is essential in a robust and growing economy. The ability to share risk with others enhances an individual's willingness to take risky actions, which include the entrepreneurial investment that has long been regarded as a key contributor to economic growth.[2] On the other hand, risk sharing can lead people to take excessive risks; those who do not face the uncertainty arising from their actions have no incentive to limit risk.

Moral Hazard

The possibility that an insured individual will take excessively risky actions arises only if outsiders, such as insurers or lenders, cannot directly control the individual's actions. Such a lack of control might result from the outsiders' inability to easily monitor the insider's behavior. If lenders could perfectly observe a borrower's risk taking, they could control the borrower's choices by, for instance, demanding

[2] This view is often referred to as the Schumpeterian view of economic growth, as put forth by Schumpeter (1934). This perspective has played a role in discussions of appropriate regulation of bank risk taking, for instance, in Greenspan (1993).

a high interest rate on loans if the borrower took particularly risky actions. If lenders cannot observe an individual's actions, they cannot directly control the borrower's choices, although they will be aware of how financial arrangements will affect the borrower's incentives.

Economists use the term *moral hazard* to describe situations in which outside lenders or insurers cannot directly observe or control an insider's actions. Under conditions of moral hazard, risk sharing increases the insider's willingness to take risky actions. Someone who is fully insured against a loss has no incentive to limit the risk of incurring the loss. That is, maximal risk sharing leads to maximal risk taking in a situation of moral hazard. Such an extreme result is generally inefficient.

Efficient Risk Sharing and Risk Taking

What do we mean by efficiency with regard to risk? In broad terms, the economist's notion of efficiency means maximizing net social benefits. Any added risk associated with an individual's actions brings with it certain benefits. Business investment, for instance, can raise the level of uncertainty regarding a business' stream of income while also offering the prospect of greater production and profit. Each increase in investment increases both the cost (of bearing or allocating additional risk) and the benefit (of improved expected profitability). Investments are economically efficient as long as the added benefit outweighs the cost.

Economists believe that competitive markets tend to result in efficient allocations of goods and services. That principle extends to the allocation of risk under moral hazard.[3] Government actions in the form of subsidies, taxes, or regulations change market outcomes, and in competitive markets such changes distort allocations and reduce economic efficiency.

Does the financial safety net cause distortions? In principle, the government could design guarantees that mimic market outcomes. Typically, however, government intervention arises from a desire to alter market outcomes. In the case of guarantees, this means either expanding coverage or underpricing relative to private market guarantees. Underpricing means that the guarantor collects fees that are less than the expected value of its obligations. Such pricing amounts to a subsidy to risk taking. We might note that roughly a third of all of the guarantees we identify in this article are entirely unpriced.

[3] Harris and Raviv (1992) survey the theory of financial contracts, and Prescott and Townsend (1984) show that competitive market outcomes are generally efficient even when moral hazard is present.

Even if guarantees are fairly priced, government provision can distort risk-taking decisions if it provides coverage that exceeds the coverage that would be available in the absence of government intervention. When risk taking is not perfectly observable, for instance, private insurance markets typically provide less than full coverage for insured losses. If the government were to offer full, fairly priced insurance, people covered by such government insurance would take greater risks than those covered by private, incomplete insurance. Note, however, that government provision of excessive insurance can preempt the private market only if it is either underpriced or mandatory.

Underpriced guarantees tend to shift resources away from activities that are not covered toward those that are. In that way, a government guarantee is similar to a direct subsidy paid to those engaged in a particular activity. A guarantee is different, however, in the way it affects attitudes toward risk. By assigning to the government part of the risk in the activities being financed, the safety net reduces market participants' willingness to control risk. Overprovision of guarantees, while not necessarily drawing resources into an activity, does shift risk preferences in a way similar to underpricing. In short, guarantees lead to expanded risk taking.

Our calculation of the size of the safety net does not represent a measure of the size of the distortions to the allocation of resources and risk taking. Such a measure would require knowledge of the extent of underpricing or overprovision of government guarantees. Those would be difficult to measure, especially the latter, since government provision often preempts private market activity. We nevertheless believe that the extent of distortions is directly related to the size of the safety net. That relationship certainly depends on the pricing of government guarantees, but expanding guarantees can increase distortions, independent of pricing. Other things equal, the greater the share of private liabilities protected by the government safety net, the more likely it is that the government guarantees are extending beyond the level of protection that would be provided in a private market.

Why Is There a Safety Net?

If the safety net is harmful to resource allocation, why have one? There are two types of justifications. One is a belief that private markets for sharing risk can fail to produce efficient outcomes. The other is a political concern for the ill effects that large losses might have on some members of society.

Proponents of the financial safety net, especially as it applies to banks, often argue that private risk-sharing arrangements tend to disregard the *systemic* consequences of large losses borne by an individual or a small group of institutions. The idea here is that such losses might spill over and generate further losses caused, for example, by a contagious loss of investor confidence.[4] Under such a view, government protection for certain investors could prevent widespread financial panic or distress.

The potential systemic consequences of a large financial failure are difficult to assess. Indeed, many scholars take the view that the evidence of contagion in financial markets is weak (see Kaufman 1994). Regardless of whether a particular troubled institution poses a systemic threat, it will certainly pose a substantial threat to its own creditors. Sometimes, the prospect of such direct losses is enough to prompt the government to intervene. Consequently, even in the absence of systemic risks, the political process can give rise to guarantees designed to protect certain politically important classes of creditors.

Our focus is not on the justifications for or possible benefits of a financial safety net. Rather, our motivation is the cost of such a policy. This cost comes in the form of distorted risk-taking incentives and the diversion of resources toward those industries or activities granted the greatest protection. The result is both an increase in risks taken and a concentration of those risks in protected sectors. We take a step toward understanding the magnitude of those effects by assessing the extent of the safety net.

The Size of the Safety Net

We now turn to describing the liabilities covered by the safety net. We sort liabilities into the three private sectors—financial firms, nonfinancial firms, and households. With these categories, we can compare government guaranteed liabilities to total sector liabilities as reported in the "Flow of Funds Accounts of the United States." We focus on the sector to which the debtor belongs, because in a credit relationship, it is the borrower who decides on the use of funds. In constructing our measure, we distinguish between liabilities that have explicit guarantees and those that the public may perceive to have implicit guarantees. In identifying implicit guarantees to include in the safety net, we follow the assessments made by other observers.

[4] The notion of systemic risk is developed, for example, by Rochet and Tirole (1996).

As discussed below, the sector with the greatest proportion of government guaranteed debt is the financial sector, although there are also significant guarantees to nonfinancial businesses and households. As indicated above, when combined, all liabilities with explicit guarantees produce a sum of $5.8 trillion, accounting for 16 percent of all private debt outstanding. Our estimate of implicitly guaranteed liabilities results in an additional $3.4 trillion, or 10 percent of private liabilities. Table 1 shows estimated liability amounts for each sector.

Financial Firms

The largest part of the safety net covers financial institutions. Within this sector, banks and other depository institutions enjoy the greatest guarantees, but the safety net protects creditors of other types of institutions as well, including government-sponsored enterprises (GSEs) and private pension funds.[5] Protected liabilities for the financial sector as a whole equal $8.4 trillion, or 45 percent of all financial firm liabilities. Of this amount, $5.0 trillion is in the form of explicit protection.

Depository Institutions. The Banking Act of 1933 established the Federal Deposit Insurance Corporation, an agency of the federal government, to insure commercial bank deposits. Originally, deposits of up to $2,500 were protected, but a series of increases has brought the covered amount per deposit to the current $100,000 (FDIC 2000a).

Soon after the FDIC was formed, the National Housing Act of 1934 created the Federal Savings and Loan Insurance Corporation (FSLIC) to insure deposits in savings associations. Additionally, over 35 years later, an amendment of the Federal Credit Union Act created the National Credit Union Share Insurance Fund to insure credit union deposits. (Because credit unions are owned by their depositors, the deposits are frequently called *shares.*) Like bank deposits, deposits in savings associations and credit unions are insured to $100,000.

The deposit insurance agencies are backed by taxpayer funds. Congress established this obligation in 1987 with the Competitive Equality Banking Act, which declared that all federally insured deposits be backed by the "full faith and credit of the United States." Taxpayers were called on to meet this obligation only a short time later. When the FSLIC's resources were insufficient to handle the more than

[5] We follow the "Flow of Funds Accounts" in placing pension funds in the financial sector, even though most defined benefit pension plans are the liabilities of nonfinancial firms.

TABLE 1

Estimated Federal Financial Safety Net, 1999
(Billions of Dollars)

	Explicitly Guaranteed Liabilities	Implicitly Guaranteed Liabilities	Explicitly and Implicitly Guaranteed Liabilities	Total Liabilities
Financial Firms				
Commercial Banks	2,203	773	2,976	4,850
	(45.4)	(15.9)	(61.3)	
Savings Institutions	637	47	684	1,113
	(57.2)	(4.2)	(61.4)	
Credit Unions	336		336	375
	(89.6)		(89.6)	
Government-Sponsored Enterprises				
Fannie Mae		1,199	1,199	1,199
Freddie Mac		870	870	870
Farm Credit System		74	74	74
Federal Home Loan Banks		477	477	477
Total		2,620	2,620	2,620
		(100.0)	(100.0)	
Private Employer Pension Funds	1,805		1,805	2,090
	(86.3)		(86.3)	

Other Financial Firms				7,723
Total for Financial Firms	4,981	3,440	8,421	18,771
	(26.5)	(18.3)	(44.8)	
Nonfinancial Firms				
Small Businesses	32		32	
Farms	7		7	
Large Nonfinancial Corporations				
Total for Nonfinancial Firms	39		39	9,769
	(0.4)		(0.4)	
Households				
FHA-Guaranteed Mortgages	504		504	
VA-Guaranteed Mortgages	80		80	
RHS-Guaranteed Mortgages	9		9	
FFEL-Guaranteed Student Loans	127		127	
Total for Households	720		720	6,640
	(10.8)		(10.8)	
Miscellaneous Liabilities	16		16	
Total Liabilities				35,180
Total Estimated Safety Net	5,756	3,440	9,196	
	(16.4)	(9.8)	(26.2)	

NOTE: Numbers in parentheses are expressed as percentages of total liabilities. All numbers are year-end figures.
SOURCES: See Appendix for data sources.

1,100 savings institutions that failed in the 1980s, taxpayers expended $130 billion over the next few years to protect deposits. After the insolvency of the FSLIC, the FDIC assumed responsibility for insuring deposits in savings associations.

Table 1 lists the amounts of deposits explicitly covered by federal deposit insurance. The amount for banks, savings institutions, and credit unions totaled $3.176 trillion as of September 30, 1999, or 50 percent of their liabilities.

The $100,000 insurance coverage limit has not been inviolable. In the case of large bank failures in the 1980s, depositors with accounts exceeding $100,000 were routinely protected from loss. Such protection has been motivated by a concern that the failure of a large institution could have systemic consequences. That is, certain institutions have been broadly perceived as too big to fail. As a result, there is a widespread public perception that at least some uninsured liabilities of depository institutions have implicit guarantees.

The 1984 insolvency of Continental Illinois National Bank and Trust Company is one of the most prominent examples of protection given to accounts exceeding $100,000. Continental was the seventh largest U.S. bank, with assets of about $41 billion. The FDIC arranged to assist Continental rather than close it, thereby protecting large depositors from any losses. Because of Continental's size and its financial connections to other financial institutions, regulators feared that the bank's failure could lead to a widespread crisis in the banking system.

Depositors with accounts exceeding $100,000 in other large insolvent banks were likewise protected during the late 1980s and early 1990s. These cases included banks that ranged between 14th and 43rd largest in bank holding company assets (FDIC 1998: 635–36, 651).

In addition to depositors in large banks, lenders of federal funds and those making loans through repurchase agreements have been protected. Federal funds loans are short-term loans between depository institutions and are made by transferring reserves held with Federal Reserve Banks. In a repurchase agreement, a bank borrows from another firm by selling Treasury securities under a contractual agreement to repurchase them on a set future date, typically within a few days.

When troubles in large banks have surfaced in the past, uninsured holders of short-term liabilities frequently have been able to withdraw their funds from the troubled bank before regulators have taken it over. Bank access to loans from the Federal Reserve has allowed short-term liability holders to escape losses. Without loans from the

Federal Reserve, many troubled banks likely would not have been able to meet rapid withdrawals and therefore would have defaulted on their obligations.

Subsequent to the wave of bank failures that began in the 1980s, Congress passed the Federal Deposit Insurance Corporation Improvement Act of 1991. One goal of the Act was to lower the cost of troubled bank resolutions in part by preventing regulators from protecting deposits beyond the $100,000 limit. Specifically, the act required the FDIC to resolve a bank's problems in the least costly manner possible. A strict interpretation of the least-cost requirement would typically rule out protection of uninsured deposits. Similarly, the act places some restrictions on Fed lending to banks that are near failure.

In spite of the Act's least-cost goal, an exemption remains that allows the FDIC to protect all depositors. The exemption can be invoked when the regulators determine that failure to protect all deposits, regardless of the $100,000 limit, would create a significant risk of systemic economic crisis. In such cases constraints on Fed lending are also likely to be less binding.[6]

Only failures of the largest depository institutions are likely to be determined to present a systemic risk. What size institution is likely to meet the test and be exempt? For our purposes the critical question is whether *market participants* believe that a given institution will be protected. We must therefore estimate the range of institutions the *market* might view as too big to fail. We have chosen to include the top 21 bank holding companies and the two largest thrift holding companies. These institutions all have assets of approximately $50 billion or more, which is greater than the assets (in current dollars) of the 11 institutions identified as potentially too big to fail during congressional testimony by the Comptroller of the Currency in 1984.[7] In these large institutions, deposits greater than $100,000 and federal funds borrowings and repurchase agreements summed to $820 billion, or 13 percent of all depositories' liabilities. We include this amount in our estimate of the implicit safety net. We should reemphasize that we are estimating which institutions are expected by *market participants* to be treated as too big to fail, and that this estimate in no way reflects official policy. Such an estimate is essen-

[6] Walter (1998) discusses FDICIA's least-cost and Fed discount window provisions.

[7] This choice follows the exercise carried out by Feldman and Rolnick (1998). For the Comptroller's congressional testimony, see U.S. Congress, House of Representatives (1984: 299–300).

tial, however, in any attempt to measure the full magnitude of the safety net.

When deposits under $100,000 in all depository institutions are combined with deposits over $100,000 and federal funds and repurchase borrowings of the largest depositories, the sum is $3.996 trillion, or 63 percent of these institutions' liabilities.

This estimate of the safety net underlying the banking industry may be conservative. For example, even in the case of small depository institutions that have failed, depositors with accounts exceeding $100,000 have frequently been fully protected. Between 1980 and 1994, there were 1,617 depository institution failures handled by the FDIC. The great majority of all deposits, regardless of account size, were protected from loss (FDIC 1998: 68–69). One could argue then that our measure of the federal safety net should include at least some uninsured liabilities of small banks.

Government-Sponsored Enterprises. GSEs are financial corporations created by federal statute to perform a specified function. For example, the Federal Home Loan Mortgage Association (Freddie Mac) was created by the Federal Home Loan Mortgage Corporation Act (Title III of the Emergency Home Finance Act of 1970) to enlarge the secondary market for home mortgages. GSEs differ from government agencies in that they typically issue shares of stock to private investors. The GSEs discussed here borrow in the capital markets, often at preferential interest rates, and lend to targeted sectors. Some GSEs lend directly to individuals or firms while others purchase loans made by private lenders.

GSEs can borrow at interest rates almost as low as the rate paid by the U.S. Treasury because, as stated in a Congressional Budget Office study, "The implicit federal guarantee leads investors in a GSE's debt or mortgage-backed securities to believe that the federal government bears most if not all of the risk of the enterprise's activities" (U.S. Congress, CBO 1991: 9–10).[8] The market's perception of government backing was confirmed during the 1980s when Fannie Mae and the Farm Credit System suffered financial difficulties and were assisted by grants of special tax treatment or loans from the federal government (U.S. GAO 1990: 9; U.S. Congress, CBO 1991: 79–80). In addition to borrowing and lending, some GSEs buy private-sector

[8] While a bill recently introduced in Congress could reduce GSE backing, reports are widespread that market participants, including a major credit rating agency, still believe GSE debt enjoys an implicit government guarantee. See for example, *The Economist* (2000: 17–18, 79–80), Setaishi and Lifton (2000: C17), and Wallison and Ely (2000: 1–3, 6–7).

loans from lenders and create securities backed by pools of the loans. (This security creation process is called *securitization*.)

Because market participants believe that GSE debt is government-backed, we include the liabilities of these institutions in our measure of the private liabilities guaranteed by the federal government. Likewise, we include the securities covered by GSE-issued guarantees. We include these measures of GSE liabilities as part of the estimated implicit safety net.

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) perform two roles in the mortgage market. First, they securitize pools of residential mortgages. Fannie Mae and Freddie Mac guarantee payments to investors in the securities so the investors are not subject to risk of loss when homebuyers default on the pooled mortgages. Second, Fannie Mae and Freddie Mac buy mortgages from originators and hold them in their own portfolios. They finance these purchases by issuing debt. Together, Fannie Mae's and Freddie Mac's guaranteed securities and their own debt totaled $2,069 billion in 1999.[9]

The Farm Credit System (FCS) is a GSE made up of a number of allied lending institutions specializing in agricultural lending. The FCS encompasses six Farm Credit Banks located across the United States and one Agricultural Credit Bank. The lending arms of the Farm Credit Banks are local associations that make short- and long-term loans. Their borrowers include farmers, ranchers, rural homeowners, agricultural cooperatives, rural utility systems, and agricultural firms. Lending activities are funded by issuing bonds and notes, which are the joint liability of all FCS banks.

The Federal Agricultural Mortgage Corporation (Farmer Mac), though considered part of the FCS, differs from the Farm Credit Banks and the Agricultural Credit Bank. Farmer Mac does not make loans. Instead, it provides the same services for the agricultural real estate and rural housing markets that Fannie Mae and Freddie Mac provide for residential housing. The amount of debt issued by the

[9] Another important federal government mortgage guarantee agency is the Government National Mortgage Association (Ginnie Mae). We do not include its guarantees as part of the safety net because to do so would involve double counting. Ginnie Mae, part of the Department of Housing and Urban Development, guarantees *only* mortgage-backed securities made up of mortgages already guaranteed by the Federal Housing Administration, the Department of Veterans Affairs, or the Rural Housing Service. Because of those primary guarantees, we count the underlying mortgages as liabilities of the household sector protected by the federal safety net. Similar to Ginnie Mae, the Student Loan Marketing Association (Sallie Mae) operates in the secondary market for student loans that already have guarantees from the Federal Family Education Loan program.

FCS (including debt issued by Farmer Mac) plus Farmer Mac's guaranteed securities equals $74 billion, the total of all FCS liabilities.

The Federal Home Loan Bank System (FHLB) makes loans to member mortgage lending institutions—primarily small depository institutions. Funds advanced through FHLB lending are used chiefly for mortgage lending. Currently, there are about 7,200 System members owning FHLB stock. The System is made up of 12 regional Federal Home Loan Banks and the Federal Housing Finance Board, which oversees the System.

The Federal Housing Finance Board issues notes and bonds to fund FHLB lending. The debt is the joint liability of the 12 FHLBs; as of 1999, the outstanding amount was $477 billion.

Pension Fund Guarantees. The pension liabilities of most U.S. businesses are backed by an agency of the federal government, the Pension Benefit Guarantee Corporation (PBGC). The PBGC protects up to a maximum annual payment ($36,613.68 in 1999) on private *defined benefit pensions* should the retiree's employer default on such payments. A defined benefit pension plan pays a set monthly benefit to a retiree. The amount of the benefit is frequently based on a combination of the retiree's age, salary earned while employed, and number of years employed. As of 1999, the PBGC-protected pension liabilities totaled $1,805 billion. These liabilities are part of the explicit safety net.

Nonfinancial Firms

Although one might think only financial firms would be protected by the federal financial safety net, this is not the case. A significant portion of the liabilities of nonfinancial firms is also protected, or perceived to be protected, and should be included in our measure of the safety net. Nonfinancial firms receive guarantees from the Small Business Administration (SBA) and the Farm Service Agency (FSA). Explicit guarantees for nonfinancial firms amount to $39 billion or less than 1 percent of this sector's total liabilities.[10]

[10] The liabilities of U.S. exporters as well as the liabilities of foreign firms buying goods and services from U.S. exporters are insured by the Export-Import Bank, an agency of the U.S. federal government created in 1934 to foster the sale of U.S. goods and services abroad. As of 1999, the Ex-Im Bank had outstanding guarantees of approximately $34 billion—the great majority of which was extended to non-U.S. businesses and individuals (only $1.5 billion was extended to U.S. citizens and U.S. firms) (Export-Import Bank 2000: 42–43). Because guarantees going to U.S. businesses are small relative to all Ex-Im guarantees and small relative to the other guarantees we discuss, we have excluded them for simplicity. Likewise, we exclude export guarantees provided by other government agencies such as the Departments of Agriculture, Defense, State, and Treasury; the Agency for International

Implicit guarantees for this sector are difficult to measure. Past bailouts of large corporations could well create a public perception that similarly situated firms would be protected in the future. Still, it is hard to identify a consensus in published comments of other observers regarding which firms might be expected to receive ad hoc protection. Because of this difficulty, we do not include an estimate of guarantees for such firms in our measure of the safety net. We will, however, offer one potential approach to forming a guess.

Small Business Administration Guarantees. The Small Business Administration, an agency of the federal government, was established to "aid and assist small businesses." The SBA guarantees loans made by private financial institutions to private nonfinancial businesses. In the SBA's primary guarantee program, 80 percent of the loan amount is protected on loans up to $100,000. For loans over $100,000, the SBA guarantees 75 percent of the loan, with a maximum guarantee of $750,000. As of 1999 the guaranteed portion of outstanding SBA-guaranteed loans equaled $31.6 billion (on total outstanding SBA loans of $39.4 billion). For our measure of the safety net, we count only the SBA-guaranteed portion.

Farm Service Agency Guarantees. The Farm Service Agency, part of the U.S. Department of Agriculture, guarantees farm loans made to purchase farmland, to construct or repair farm buildings, and to finance working capital. Guaranteed loans are made by private lenders and are limited to $700,000. FSA guarantees cover up to 95 percent of loan principal in the event of default by the borrower. The FSA-guaranteed portion of outstanding FSA-backed loans amounted to $7.0 billion in 1999 (out of a total of $7.1 billion).

Ad Hoc Assistance to Large Corporations. During the 1970s, the automotive manufacturer Chrysler Corporation experienced large financial losses. A number of factors contributed to Chrysler's difficulties. A shortage of oil and rapid increases in its price worldwide enhanced the appeal of smaller, more fuel-efficient, foreign-manufactured cars. At the same time, high interest rates and slow economic growth reduced consumer purchases of new automobiles. These and other factors brought Chrysler close to default by 1979 (U.S. Congress, Senate 1979: 1–30).

At the same time, unemployment was high, and the failure of Chrysler could have meant massive layoffs. The concern over the employment effect of a Chrysler failure and over the effects of its

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Development; and the Overseas Private Investment Corporation. For a discussion of export guarantees from these agencies, see OMB (2000a: 202–4).

failure on economic output led to the 1980 enactment of the Chrysler Loan Guarantee Act. The act provided Chrysler with $1.5 billion in federal government loan guarantees, which allowed Chrysler to borrow at risk-free interest rates. The infusion of additional capital protected all of Chrysler's liability holders by permitting Chrysler to survive its immediate financial problems. The government's action in this case involved no actual expenditure of public funds. At the time of the bailout, however, there was a possibility that Chrysler would default and draw on its government guarantee.

Chrysler was not the first large nonfinancial corporation to receive loan guarantees. Several years earlier the federal government had extended loan guarantees to the aerospace company Lockheed. And, in 1979, the government granted loan guarantees to Wheeling-Pittsburgh Steel.

Those examples demonstrate that at times the government has been willing to protect large corporations from failure. As with large banks, we could try to infer which corporations market participants *expect* to be protected in the future. Unfortunately, historical experiences give us less of a guide than in the case of large banks. The motivations for bailouts of nonfinancial firms depend on the specific circumstances of the firms involved. Still, one might form a guess about the likelihood of ad hoc protection based on the relative size of Chrysler in 1979. At that time, before it was granted government protection, it was the 17th largest nonfinancial corporation in the Fortune 500 ranking. The sum of the liabilities of the 17 largest nonfinancial corporations in the 1999 Fortune 500 equals $1,402 billion. Since this calculation is speculative and not supported by published sources, we do not include it in our estimated safety net.[11]

Households

The federal financial safety net protects a significant portion of the liabilities of households. Most prominently, about $593 billion in home mortgage debt is backed by a government guarantee. Also important, although smaller, are student loan guarantees, which amounted to $127 billion at the end of 1999. Combining mortgages protected by the safety net with protected student loans means that

[11] Some of the top 17 corporations might not have all of the special characteristics that made Chrysler's potential failure politically sensitive. For example, it appears that creditors of Enron Corporation will not be protected from loss, even though at the time of its bankruptcy Enron was the seventh largest Fortune 500 corporation. On the other hand, there may well be corporations below the top 17 that do have such characteristics.

$720 billion in household debt, or about 11 percent of all household debt, is explicitly protected by the federal financial safety net.

Mortgage Loan Guarantees. There are three major government programs that support home ownership through loan guarantees. The oldest and largest of these is that of the Federal Housing Administration (FHA), which dates to the 1930s. Today, FHA-insured mortgages primarily fund purchases by first-time homebuyers, who accounted for 76 percent of FHA-insured loans in 1997. This program also tends to focus on assistance to low- and moderate-income homebuyers by placing a limit on loan size. The maximum loan depends on the general level of real estate costs in a geographic market, with the greatest cap being $219,849. For qualified homebuyers, the FHA guarantees repayment on loans made by a private mortgage lender. As of the end of 1999, FHA-guaranteed mortgages outstanding totaled $504 billion.

The two other agencies that provide guarantees to private residential mortgages are more specialized than the FHA. The Department of Veterans Affairs (VA) offers guarantees to veterans and active military personnel, while the Department of Agriculture's Rural Housing Service (RHS) serves homebuyers in rural markets. In 1999, the guaranteed portions of outstanding loans made under the VA and RHS programs amounted to $80 billion and $9 billion, respectively.

Student Loan Guarantees. The federal government guarantees student loans for higher education through its Federal Family Education Loan (FFEL) program administered by the Department of Education. This program aims to subsidize the costs of higher education by lowering student loan borrowing costs. Students borrow from private lenders such as banks and savings institutions. State and private nonprofit agencies guarantee the student loans, and these agencies are in turn insured against loss by the FFEL. In 1999, FFEL guarantees covered $127 billion in student loans.

Miscellaneous Guarantees

Smaller federal government loan guarantee programs, too numerous to discuss in detail, protect other liabilities of business and household issuers. Individually, these programs cover only minor amounts, but collectively they gave explicit protection to $16 billion in private liabilities in 1999. These programs guarantee such liabilities as loans made to medical students to finance their educations, guaranteed by the Department of Health and Human Services, and loans made to shipbuilders and purchasers, guaranteed by the Department of Transportation.

Conclusion

The federal government explicitly protects $5.8 trillion or 16 percent of private liabilities. It seems likely to us that market participants believe the safety net includes more than these explicit guarantees. While it is impossible to measure implicit protection with certainty, we estimate that an additional $3.4 trillion in private liabilities may have such guarantees. Adding the two together produces a total of $9.2 trillion. Again, this total includes a mixture of explicit and implicit guarantees, but we believe it represents a reasonable and conservative estimate of the size of the safety net.

At $9.2 trillion, or more than one-fourth of all private liabilities, our estimate is clearly a large number. Does it represent a safety net that is "too big?" While this is a difficult question to answer, such extensive protection *is* likely to distort the operation of the private financial markets by (1) encouraging excessive risk taking by issuers of guaranteed liabilities and (2) shifting funds away from more valuable uses in sectors that lack guarantees.

Are such distortions apparent? They seem to be. For example, the banking industry is among the most highly protected segment. Approximately 61 percent of commercial bank and savings institution liabilities and 90 percent of credit union liabilities are protected by government guarantees. Excessive risk taking by thrift managers during the 1970s and 1980s in response to extensive government guarantees is widely viewed as a significant contributor to the extent of the thrift industry crisis. Similarly, money center banks suffering large losses on less-developed-country loans in the mid-1980s continued to gather deposits because of the explicit and implicit government guarantee of repayment on such deposits. Without guarantees, fewer funds may have been available to such banks, freeing resources for perhaps more productive and less risky activities. Some observers have expressed concerns that the 1999 Gramm-Leach-Bliley Act, which allows greater combinations of banking and other financial activities, could expand the safety net by making it possible for additional institutions to become "too big to fail."

Government guarantees clearly produce benefits. Deposit insurance eliminated bank runs, which had been common before its introduction in 1933. Pension guarantees have ensured that losses for retirees are reduced when employers default on their defined benefit pension liabilities. Still, these benefits come at a cost of reduced economic efficiency when liability issuers take excessive risks and resources flow toward sectors with generous guarantees to the detriment of sectors with smaller or no guarantees. Ultimately, these dis-

tortions can hinder the economy's ability to produce widespread increases in income and wealth. Current economic theory gives us no quantitative guide to determining how big the safety net should be or to assessing the efficiency costs of a safety net that is too big. Our purpose has been to give the reader a sense of the possible size of these costs by estimating the relative magnitude of the safety net. The size of the safety net suggests to us that the costs could be quite large.

Appendix: Data Sources

Commercial Banks – Explicitly Guaranteed Liabilities: "Estimated Insured Deposits," in FDIC (1999: 18), Table VI-C.

Commercial Banks – Implicitly Guaranteed Liabilities: Estimated uninsured domestic deposits (total domestic deposits less estimated insured deposits), fed funds purchased, and securities sold under agreements to repurchase from quarterly financial reports, found in "FDIC Institution Directory," FDIC (2000c), for the largest 21 bank holding companies.

Commercial Banks – Total Liabilities: Board of Governors of the Federal Reserve System (1999), "Total liabilities" from Z.1 Table L.110 – *U.S. Chartered Commercial Banks*, plus "Total liabilities" from L.112 – *Bank Holding Companies*, plus "Total liabilities" from Table L.113 – *Banks in U.S. Affiliated Areas*, less "Taxes payable" from Table L.110.

Savings Institutions – Explicitly Guaranteed Liabilities: "Estimated Insured Deposits," in FDIC (1999:18), Table VI-C.

Savings Institutions – Implicitly Guaranteed Liabilities: Estimated uninsured domestic deposits (total domestic deposits less estimated insured deposits), fed funds purchased, and securities sold under agreements to repurchase from quarterly financial reports, found in "FDIC Institution Directory," FDIC (2000c), for the two largest thrift holding companies.

Savings Institutions – Total Liabilities: Board of Governors (1999), Table L.114 – *Savings Institutions*, "Total liabilities," less "Taxes payable."

Credit Unions – Explicitly Guaranteed Liabilities: "Total Insured Shares," from National Credit Union Administration (2000, "Financial Highlights Page").

Credit Unions – Total Liabilities: Board of Governors (1999), Table L.115 – *Credit Unions*, "Total liabilities."

Government-Sponsored Enterprises: Figures for each GSE's Implicitly Guaranteed Liabilities and Total Liabilities are from Executive Office of the President, OMB (2000a: 237–38), and include

both debt issued by GSEs and mortgage backed securities they guarantee.

Private Employer Pension Funds – Explicitly Guaranteed Liabilities: Liabilities of all pension funds insured by the Pension Benefit Guarantee Corporation (which insures only defined benefit plans) were $1,405 billion in 1996, the latest date for which data are reported (PBGC 1998: Tables S-23 and M-8). To estimate these liabilities for 1999, the year with which we are concerned, we multiplied the 1996 figure by the recent past growth rate of fund liabilities. Between 1991 and 1996 PBGC-insured pension fund liabilities grew by an average of 10.6 percent per year. Growing three years at a 10.6 percent rate yields $1,900 billion, our estimate of fund liabilities in 1999. But as noted in our article, PBGC covers pensions only up to a specified maximum payment per year, so a portion of beneficiaries' pensions in guaranteed plans—those with pensions paying above this maximum—are not insured. According to PBGC this portion is 5 percent (PBGC 1996: footnote to Table B-5). To arrive at the guaranteed portion of PBGC guaranteed pension fund liabilities we multiplied total 1999 fund liabilities ($1,900 billion) by .95 to yield $1,805 billion.

Private Employer Pension Funds – Total Liabilities: Private pension fund reserves (liabilities) figure from Board of Governors (1999), Table L.119 multiplied by .462. Table L.119 provides figures on reserves for the combination of defined benefit and defined contribution pension plans, but not separately. Yet we wish to exclude defined contribution plans from our calculation of total liabilities. Defined contribution plans are essentially equity, not liabilities, since the fund providers cannot default, but simply pay employees the return earned on the fund. To eliminate defined contribution reserves we multiply the Table L.119 figure by an estimate of the proportion of defined benefit reserves to total pension fund reserves. We arrived at our estimate as follows. Between 1988 and 1994 (1994 was the most recent year for which data was reported), defined benefit plan reserves fell from 60.6 percent of all private pension fund reserves to 52.7 percent (www.dol.gov/dol/pwba/public/programs/opr/bullet1994/e_11.htm, posted January 2000). On average the proportion declined by 1.3 percentage points each year. Assuming the rate continued until 1999, then defined benefit reserves amounted to 46.2 percent of all pension fund reserves (liabilities) in 1999.

Other Financial Firms – Total Liabilities: Board of Governors (1999), Tables L.117 – *Life Insurance Companies*, L.118 – *Other Insurance Companies*, L.126 – *Issuers of Asset-Backed Securities*, L.127 – *Finance Companies*, L.128 – *Mortgage Companies*, L.129 –

Real Estate Investment Trusts, L.130 – *Security Brokers and Dealers*, L.131 – *Funding Corporations*, less taxes payable whenever a figure for taxes was reported on these tables.

Small Businesses – Explicitly Guaranteed Liabilities: Small Business Administration (SBA)-guaranteed portion of SBA-guaranteed loans from OMB (2000b: 1088–89).

Farms – Explicitly Guaranteed Liabilities: Farm Service Agency (FSA)-guaranteed portion of FSA-guaranteed loans from OMB (2000b: 101–2).

Large Nonfinancial Corporations: As explained in the text, we do not include an estimate for this category. The line is in the table because we think it is likely that the market believes that ad hoc assistance to large firms would be forthcoming under some circumstances.

Total for Nonfinancial Firms – Total Liabilities: Board of Governors (1999), Table L.101 – *Nonfinancial Business*, "Total liabilities," less "Taxes payable."

FHA Mortgages – Explicitly Guaranteed Liabilities: Federal Housing Administration (FHA)-guaranteed portion of FHA-guaranteed loans from OMB (2000b: 512–19).

VA Mortgages – Explicitly Guaranteed Liabilities: Department of Veterans Affairs (VA)-guaranteed portion of VA-guaranteed loans from OMB (2000b: 889–90).

RHS Mortgages – Explicitly Guaranteed Liabilities: Rural Housing Service (RHS)-guaranteed portion of RHS-guaranteed loans from OMB (2000b: 134–36).

FFEL Student Loans – Explicitly Guaranteed Liabilities: Federal Family Education Loan (FFEL)-guaranteed portion of FFEL-guaranteed loans from OMB (2000b: 379–83).

Total for Households – Total Liabilities: Board of Governors (1999), Table L.100 – *Households and Nonprofit Organizations*, "Total liabilities."

Miscellaneous Liabilities – Explicitly Guaranteed Liabilities: OMB (2000a: 208).

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