

# House of Debt

BY ATIF MIAN  
AND AMIR SUFI

With hindsight, it's clear that the failure to force the rapid unwinding of mortgage debt in the wake of the housing crash delayed recovery from the Great Recession – as well as devastating millions of homeowners who lost their savings and, all too often, their jobs. In the widely acclaimed book, *House of Debt*,\* Atif Mian of Princeton and Amir Sufi of the University of Chicago take the argument a giant step further, focusing on the economy's problematic dependence on debt to finance everything from corporate investment to student loans. ¶ Traditional debt contracts, they point out, force borrowers who can least afford it to bear most of the risk of macroeconomic volatility. The direct consequence, of course, is the misery faced by debtors who can't meet their obligations when the economy heads south. Worse, individuals' risk translates into greater collective volatility, feeding asset bubbles and deepening the business cycle. The chapter excerpted here lays out a clear case for rebalancing risk between lender and borrower – and, alas, why reform is so difficult.



— Peter Passell

**The college class of 2010 had little time to celebrate their freshly minted diplomas, as the recession smacked them with the harsh reality of looking for jobs in a horrible labor market. At the time, the unemployment rate was over 10 percent for new graduates. When they'd entered college in 2006, none of them could have predicted such a disastrous situation. Since 1989, the unemployment rate for this generally privileged group had never exceeded 8 percent.**

Actually, the bleak jobs picture threatened the livelihood of recent graduates for another reason: many left college saddled with enormous debts. Driven by the allure of higher salaries, Americans borrowed heavily to go to college. Outstanding student loan debt doubled from 2005 to 2010, and by 2012 exceeded \$1 trillion. The Department of Education estimated that two-thirds of bachelor's degree recipients borrowed money from either the government or private lenders.

Unfortunately for the 2010 graduates, debt contracts don't care what the labor market looks like when seniors matriculate. Regardless of whether a graduate can find a well-paying job, creditors insist on payment. Student debt guaranteed by the federal government is especially pernicious in this regard because it cannot be discharged in bankruptcy: Washington can garnish wages or withhold tax refunds to ensure it is paid.

The combination of unemployment and the overhang of student debt undermined demand just when the economy needed it most. Recent college graduates with large debts delayed major purchases, and many were forced to move back in with their parents. Ezra Kazee, an unemployed graduate with \$29,000 in debt, summed it up. "You often hear the quote that you can't put a price on ignorance," he said. "But with the way higher education is

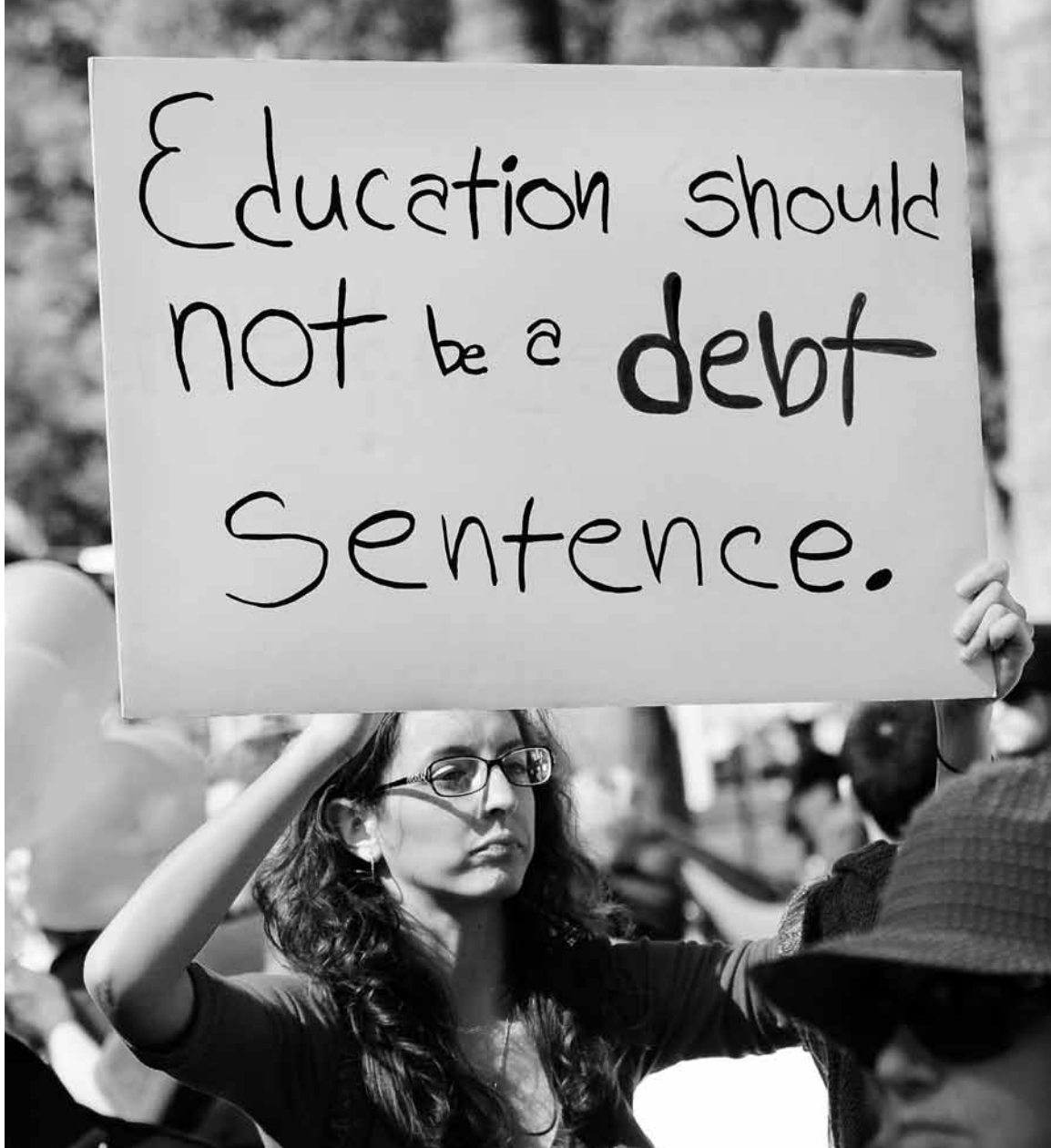
going, ignorance is looking more and more affordable every day."

#### **THE RISK-SHARING PRINCIPLE**

The student debt debacle is another example of the financial system failing us. Despite the high cost of a college degree, most economists agree that it is worth the investment because of the wage premium it commands. Yet young Americans increasingly recognize that student debt unfairly forces them to bear a large amount of economic risk.

This makes no sense. College graduates were thrown into dire circumstances just because they happened to have been born in 1988, 22 years before the most disastrous labor market in recent history. Why should they be punished for that? Rather than facilitate the acquisition of valuable knowledge, a financial system built on debt increasingly discourages college aspirations.

Both student debt and mortgages [discussed in detail earlier in the book] illustrate a broader principle. If we're going to fix the financial system – if we are to avoid the painful boom-and-bust episodes that are becoming all too frequent – we must address the key problem: the inflexibility of debt contracts. When someone finances the purchase of a house or a college education, the contract he signs must allow for some sharing of the



downside risk. Repayment must be made contingent on economic outcomes; it must resemble equity more than debt.

This principle could be applied easily in the context of education. Student loan terms should be made contingent on the state of the job market at the time the student graduates. For example, in both Australia and the United Kingdom, students pay only a fixed percentage of their income to cover their loans. If a student cannot find a job, he or she pays nothing. For reasons we will discuss, we be-

lieve a better system would make the loan payment contingent on a broader measure than the individual's income. But the principle is clear: recent graduates should be protected if they face a dismal job market. In return, though, they should better compensate the lender if they do well.

This is not a radical leftist idea; even Milton Friedman recognized problems with student debt. Friedman's proposed solution was similar to ours; he believed that student-loan financing should be more "equity-like," with



payments automatically reduced for graduates in a weak job environment.

Making financial contracts in general more equity-like means better risk-sharing for the entire economy. When house prices rose, both the lender and borrower would benefit. Likewise, when house prices crashed, both would share the burden. This is not about forcing lenders to bear all downside risk. It is about promoting contracts in which both lenders and borrowers benefit from the upside and bear some cost on the downside.

Financial contracts that share more of the risk would help avoid bubbles and make market crashes less severe. Debt facilitates bubbles by convincing lenders that their money is

safe, leading them to lend to optimists who bid asset prices higher and higher. Thus, if lenders were forced to take losses when the bubble popped, they would be less likely to lend into the bubble in the first place.

Note, too, that if financial contracts were written this way, lenders with deep pockets would bear more of the pain in a crash. But since their spending would be less affected, the demand shock to the economy would be smaller. In the context of housing, a more equal sharing of losses would also help avoid the painful cycle of foreclosures.

In an earlier chapter, we advocated policies that would help restructure household debt when a crash materialized. But intervening

after the fact requires political will and popular support, both of which are absent during a severe recession. The contingent contracts we propose here would automatically accomplish the goal without undermining incentives to honor the contracts. Had such mort-

the rest of us. The decline in house value leads Jane to pull back on personal spending, and this pullback will necessarily be greater if she continues to pay her mortgage. On the other hand, if she allows the bank to foreclose, the market value of other houses is further

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gage contracts been in place when house prices collapsed, the Great Recession would not have been “great” at all.

#### **SHARED-RESPONSIBILITY MORTGAGES**

A conventional mortgage forces the borrower to bear the full burden of a decline in the house’s market value until his or her equity is completely wiped out. A shared-responsibility mortgage (SRM) has two important differences: the lender offers downside protection to the borrower, while the borrower gives up a portion of any gain in house value to the lender.

Consider a homeowner, Jane. She makes a \$20,000 down payment to buy a house selling for \$100,000, leaving her with a mortgage of \$80,000. Suppose the market value drops to \$70,000. In a standard, 30-year fixed-rate mortgage, Jane loses all of her home equity, which was probably most of her savings. She faces two choices at this point. She can give the keys to the house back to the bank, or she can continue making mortgage payments despite the reality that these payments are not adding a dime to her equity.

Neither of these options is particularly attractive for Jane. Worse, both are terrible for

depressed, accelerating the vicious cycle of lost wealth.

How could a shared-responsibility mortgage help? If house prices remained the same or rose, the interest payment on Jane’s SRM would remain the same. For example, if the 30-year mortgage rate were 5 percent, Jane would be required to make the same mortgage payment of \$5,204 to her lender every year under the SRM, just as under the typical fixed-rate mortgage. Also like a fixed-rate mortgage, a portion of Jane’s payment would go toward interest and the remainder toward principal. And the pace of amortization would be unchanged.

The key difference between the SRM and a conventional mortgage is that the SRM provides downside protection to Jane in case the value of her house falls. This is accomplished by linking Jane’s mortgage payments to her local housing price index. Linking to the local index instead of the market value of Jane’s own house eliminates any incentive for Jane to neglect her home in order to lower her mortgage payments.

Another benefit of using a local house-price index is its widespread availability. A number of entities – firms including Zillow

and CoreLogic, along with the Federal Housing Finance Agency – produce such indexes, many of them at the zip-code level. Further credibility could be added by adopting a commonly accepted framework for constructing them; a government or industry watchdog could be responsible for ensuring their authenticity.

Making payments contingent on public indexes is nothing new. For example, many countries have adopted payments that are

her annual mortgage payment would once again revert to the full contractual payment of \$5,204.

Interest rates tend to fall during recessions. As a result, the adjustable-rate mortgages issued today do offer some protection by automatically lowering the interest rate when the economy sputters. But the downside protection of SRMs is much more significant. Not only does Jane enjoy a lower interest payment, she benefits from a decline in the principal

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linked to some index of inflation. The U.S. government itself issues inflation-indexed bonds.

The downside-protection provision works by proportionately reducing Jane's mortgage payment if the housing value index falls below the level when she purchased her property. For example, if her local index fell by 30 percent by the end of her first year of ownership, her mortgage payment in her second year would decline 30 percent, to \$3,643. But her 30-year amortization schedule would remain the same. Thus if Jane's house-price index remained unchanged for the remaining 29 years of her mortgage, she would receive a 30 percent forgiveness in principal by the end.

However, on average, house prices are expected to rise in the long run. It is therefore likely that after falling to 70, Jane's local index would rise again and at some point surpass the original mark of 100. As the index gradually recovered, her mortgage payments would rise in tandem. Once the index crossed 100,

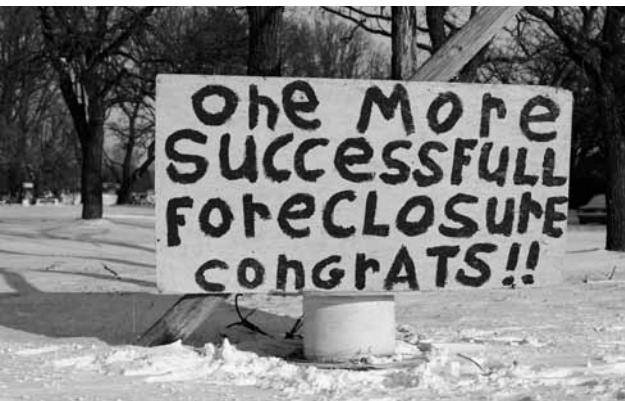
balance of the mortgage, which always leaves her with equity in the home.

Of course, this downside protection comes at the expense of lenders. So, if no supplement to their compensation were included in good times, lenders would need to charge a higher upfront interest rate to offset the downside risk. The cost of providing downside protection depends on expected house-price growth and house-price volatility. If house prices typically grow at a brisk pace, the cost of downside protection would be lower. On the other hand, if house prices are volatile, the cost of the protection would be higher.

Using a standard financial formula, one can calculate the cost of bearing risk for a given rate of expected house-price growth and volatility. House prices in the United States have historically grown at an annual rate of 3.7 percent, with a standard deviation of 8.3 percent. These numbers imply that lenders would need to charge about 1.4 percent of the initial mortgage amount to cover the cost. However,

we could also fully compensate the lending institution by giving it a small share of the profit if Jane sold or refinanced her house.

The lender would not have to worry about when or if Jane sold the house. As long as the lender maintained a diverse portfolio of mortgages, it could expect a predictable stream of capital gain payments. And here, too, we can use a financial formula to calcu-



late the expected benefit to the lender. Four to five percent of the existing housing stock is sold every year. Combined with data on average house-price growth, this implies that a 5 percent capital-gain share would more than compensate for the downside protection provided to Jane. The cost of SRM downside protection would be even lower if one took into account the expected reduction in house-price volatility as a result of the general use of risk-sharing mortgages.

#### **QUANTIFYING THE BENEFITS OF SRMS**

In what follows, we ask the following question: how bad would the Great Recession have been had all homeowners possessed SRMs instead of standard mortgages?

The immediate consequence of SRMs in the face of house-price declines is that the wealth of low-to-middle net-worth households would have been partly protected by

guaranteeing everyone at least the same percentage of home equity as they had had when they initially purchased their homes. For example, if a house with an \$80,000 mortgage dropped in value from \$100,000 to \$70,000, the mortgage interest payment would also drop by 30 percent, which means the mortgage value would drop by 30 percent (if the market expected house prices to remain this low). As a result, the new mortgage value would be \$56,000. The homeowner would retain \$14,000 of equity in a \$70,000 home, which is (still) 20 percent. Notice that the homeowner would still bear some loss; her equity would decline from \$20,000 to \$14,000. But the loss would be far smaller than it would have been with a standard debt contract, where the full \$20,000 in equity represented by the down payment would have vaporized. As a result, the U.S. would have been partly protected from the large increase in wealth inequality that it witnessed between 2006 and 2009.

But the advantages of SRMs go much further. A primary economic benefit of SRMs would have come from avoiding foreclosures. The downside protection embedded in SRMs implies that the loan-to-value ratio would never have gone higher than what it was at origination. For example, if a borrower bought a home with a 20 percent down payment, he would retain at least a 20 percent equity share regardless of future house-price movements.

If all mortgages in the economy had been structured as SRMs, few would ever have turned “upside down.” Thus, even those who could not afford to make the monthly payments would not have allowed their houses to go into foreclosure. Since they retained equity in their houses, they would have been better off selling at market value, paying off the mortgage and pocketing the balance. Interestingly, this feature of SRMs would have also

reduced the magnitude of crisis because reducing foreclosures would have trimmed the fall in house prices between 2006 and 2009.

In research with Francesco Trebbi of the University of British Columbia, we quantified the effect of foreclosures on house prices. Our analysis showed average house prices fell by 1.9 percentage points for every 1 percent of homeowners who went into foreclosure between 2007 and 2009. Since SRMs would have virtually eliminated the 5.1 percent rate of foreclosure, it would have reduced the fall in house prices by 9.7 percentage points over the period. Actual house prices fell by 21 percent in these years. So by preventing foreclosures, SRMs might have saved almost the entire amount lost in housing wealth – about \$2.5 trillion.

In turn, buffering the decline in housing wealth would have had two positive indirect effects on the economy: higher household spending and fewer job losses. Households cut back an estimated six cents of spending in from 2006 through 2009 for every dollar of housing wealth lost. Thus, preventing a \$2.5 trillion decline in housing wealth would have translated into \$150 billion less decline in household spending.

There would have been another, subtler impact of SRMs on overall spending. Since households with low wealth and high debt leverage have a higher marginal propensity to consume, SRMs would have helped cushion the blow of a decline in housing wealth by passing some of their losses on to lenders. We estimate this wealth transfer would have totaled \$451 billion. [*See the detailed calculation in the book. – the editors.*]

Proponents of the view that the disruption in banking was primarily responsible for the recession might respond that losses of this magnitude for the financial sector would have done extreme damage to the economy. However, the idea that financial firms should

never take losses is indefensible: they are in the business of taking risk. Also, in a world with SRMs, it is likely that investors who held them would not be so levered themselves. We seek to encourage an entire financial system that is more equity-dependent, and therefore better able to absorb losses.

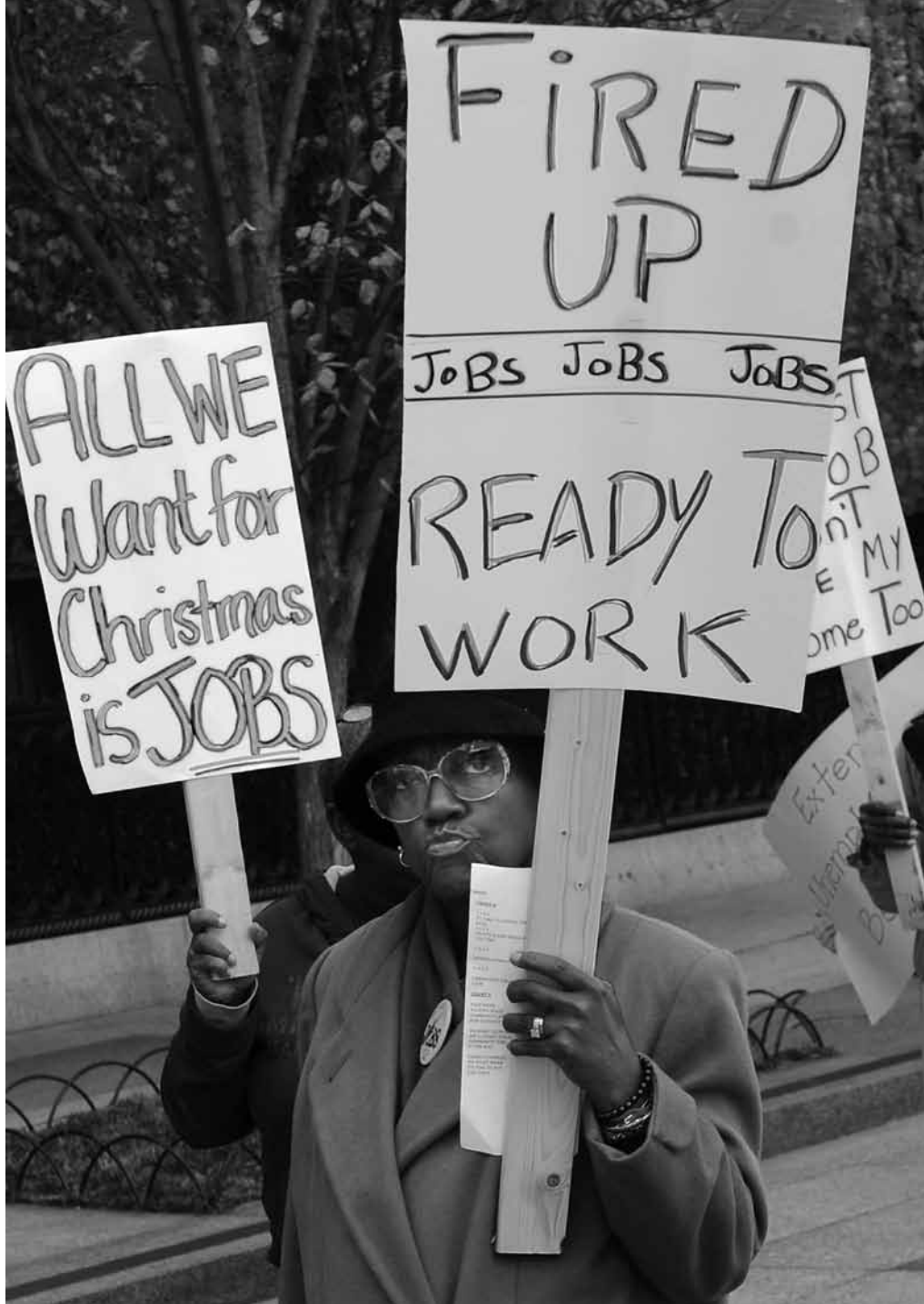
Back to the calculation of the impact on spending of shifting housing losses from debtors to creditors. Using an estimate of a gain of 12 cents in spending per dollar of wealth transferred, we arrive at a spending gain of \$54 billion for the aforementioned \$451 billion transfer.

Overall, then, a world with SRM mortgages would have seen an increase in aggregate spending of \$204 billion, substantial stimulus even in the context of the gigantic U.S. economy. To put things in perspective, the federal stimulus program of 2009 added \$550 billion to government spending in the short run. The SRM regime thus would have provided an automatic stimulus equal to almost half the government stimulus program – and without any increase in government debt.

## **PREVENTING JOB LOSSES**

By shoring up aggregate demand in the worst part of the recession, SRMs would have protected jobs as well. The decline in spending between 2006 and 2009 compared to the long-run trend for the United States was \$870 billion, directly resulting in the loss of an estimated 4 million jobs. If SRMs had restored \$204 billion of that sum, it would have translated to almost a million fewer jobs lost in those years.

However, the calculation above is incomplete. Each job saved further contributes toward overall spending, thereby creating a virtuous cycle – a multiplier effect – that augments the original spending increase. Some of the most careful work on the magnitude of this



spending multiplier comes from Emi Nakamura and Jon Steinsson of Columbia University, who estimate the multiplier to be between 3.5 and 4.5 during periods of high unemployment, such as 2007-2009.

That multiplier was estimated for an increase in government spending that would

eventually be financed by an increase in future taxes, which could be expected to partially offset the stimulus since some taxpayers would recognize the prudence of saving more to pay off future liabilities. However, the spending boost under the SRM regime would not have been accompanied by expectations



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of higher taxes. As such, the spending multiplier due to SRMs could be larger.

Regardless of the exact size of the multiplier, though, SRMs would have substantially mitigated the severity of the recession. If we assume a spending multiplier of just two, the net spending decline would have been only \$460 billion instead of \$870 billion, and two million jobs would have been saved. If we assume a spending multiplier of 4, the recession would have been almost completely avoided.

#### **ADDITIONAL BENEFITS**

The potential benefits of SRMs extend beyond the aforementioned gains – in particular, SRMs would also help prevent bubbles. The downside protection in SRMs would give lenders more cause to worry about future movements in house prices. Hence lenders would have to be mindful of possible froth in local housing markets, especially for newly originated mortgages. If lenders feared that the market might be in a bubble, they would

raise interest rates for new mortgages in order to cover the cost of the increased likelihood of loss due to a drop in house values.

Another advantage is that homeowners would have to think carefully before doing “cash-out” refinancing. If they refinanced in a booming housing market to realize cash from their home equity, they would need to pay 5 percent of their net gain to the incumbent mortgage holder. This would be a useful discipline on borrowers, especially in light of evidence that many homeowners excessively binged on debt as cash-out refinancing became easier.

### **WHY DON'T WE SEE SRMS?**

The government provides large tax subsidies to debt financing – in particular, interest payments on debt are tax deductible – encouraging overreliance on debt contracts. The government thus pushes the financial system toward debt financing, even though debt can have horrible consequences for the economy.

The mortgage market in particular is dominated by government and distorted by tax policy. The most dominant players in the mortgage market are the two big government-sponsored lending agencies, Freddie Mac and Fannie Mae. They decide which mortgage contract to encourage, and the rest of the market follows. That explains why 30-year, fixed-rate mortgages are the standard here, but rare elsewhere.

The importance of government in determining the financial contracts that households use is evident in the United Kingdom. In 2013 the UK government launched the Help to Buy program, which offered what the British economist David Miles calls an “equity loan.” If a household provides a 5 percent down payment and obtains a 75 percent first mortgage, the government will provide a 20 percent loan, where the value of the loan is

fixed at 20 percent of the home’s market value. As a result, if the home falls in value, so does the principal balance on the government loan.

In our view, the UK’s equity loan is not as desirable as an SRM because of the retention of the conventional first mortgage and the more limited risk-sharing in the event of house-price declines. A homeowner in the Help to Buy program can still go underwater if his house price falls significantly, and the combination of the first mortgage with the equity loan likely tends to inflate house prices. But, as Miles has shown, the Great Recession in the United Kingdom would have been far less severe had they been in place. The program has proved immensely popular, by the way, which demonstrates how government choices dictate what financial contracts prevail in the marketplace.

Tax policy also limits innovation in the mortgage industry. Because of its risk-sharing qualities, the SRM would likely not qualify as a “debt instrument” and would therefore not receive the same preferential tax treatment that serves as a subsidy. In fact, the IRS only gives the deduction if the party obtaining the financing – a homeowner or shareholders of a corporation – is subordinate to the rights of general creditors. It’s thus official: to get the tax advantage, a homeowner must bear the first losses when house prices fall.

We can’t really know whether something like shared-responsibility mortgages would emerge organically if the government didn’t so strongly support standard mortgages. But the bias of current policy is important. It certainly means we cannot claim that the absence of SRMs in the marketplace is evidence that borrowers and lenders don’t want them.

### **BUT DEBT IS SO CHEAP...**

The financial system relies so heavily on debt because it allows those who want financing

to raise funds at lower net cost. Thus some argue that moving away from a debt-based financial system would hurt the economy because it would raise the cost of capital.

Debt is cheap because the government massively subsidizes its use. We've discussed the interest-expense tax deduction, but the subsidies are ubiquitous. The entire financial system is based on explicit or implicit government guarantees of the debt of financial intermediaries. Deposit insurance encourages

ample, that it solves a costly "moral hazard" problem. For example, a student loan that demands repayment regardless of the graduating student's future income encourages the student to work diligently toward the highest-paying job possible. In contrast, if the student-loan payment depended on the student's own income, the student would have a weaker incentive to find a high-paying job. Why work hard when the bank gets some of my income, and there are no penalties for not working?

## **The equity-like contracts we propose here would be contingent on a measure of risk that the individual's own behavior could not influence.**

banks to have substantial short-term debt (deposits) in their capital structure. Implicit subsidies to debt financing encourage financial institutions – especially the large ones – to finance themselves almost exclusively with debt. Debt may look cheap to borrowers, but only because a portion of the cost is borne by third parties (taxpayers). And we shouldn't be surprised that financial intermediaries, which have incentives to use so much debt financing, would lend to households using the same inflexible debt contracts.

Further, as we have argued throughout the book, debt financing can generate other sorts of negative externalities. These include the fire sale of assets below market prices (like foreclosures) and massive aggregate demand shocks (a lot of people cutting back spending) that can throw the economy into recession.

In our view, the massive subsidies to debt financing explain why our financial system is so addicted to it. But some economists still argue that debt is an optimal contract for raising capital for other reasons, and that this explains why debt is so cheap. They say, for ex-

The argument doesn't hold water, though, when the contingency is beyond the borrower's control. The equity-like contracts we propose here, such as SRMs, would be contingent on a measure of risk that the individual's own behavior could not influence. In the case of the SRM, the contract would provide downside protection linked to a local house-price index, not to the market value of the owner's own house. For student loans, the contract would require a lower interest payment if the job market deteriorated, not if the income of the individual fell.

Another common explanation for why debt is cheap is that investors demand super-safe assets. In other words, investors are willing to pay a premium for assets that never change in value. Such assets can only be created if the borrower bears all the risk. If equity-like contracts became dominant, investors who desired super-safe assets would demand a very large premium to hold them.

But why would investors be unwilling to take risks in order to gain higher expected returns? Investors as a group are relatively

wealthy, and therefore constitute the sector that should be most willing to bear risk as long as they are properly compensated.

We admit there is substantial evidence that investors show an extreme desire to hold what appear to be super-safe assets. But this is likely driven by the same government subsidies to debt financing we have already mentioned. For example, when the financial crisis peaked in September 2008, the U.S. Treasury stepped in to guarantee money-market funds. Now,

during the Great Recession, countries in Europe with particularly high debt burdens, such as Ireland and Spain, suffered a much worse recession than the countries that had been lending to them, notably Germany. Why? Partly because of inflexible debt contracts, which forced losses on debtor countries while creditor countries remained protected. The levered-losses framework applies to the international system just as it does within the United States.

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all investors know that money-market funds enjoy an implicit guarantee from the government. Their “desire” to put cash into money-market funds is not some primitive preference. They are simply responding rationally to an implicit government subsidy.

If investors really do exhibit innate preferences for super-safe assets, the government should directly cater to the demand rather than guaranteeing private-sector debt. As we've seen, relying on the private sector for super-safe assets has toxic consequences. Research by Annette Vissing-Jorgenson (University of California-Berkeley) and Arvind Krishnamurthy (Stanford) highlights how financial crises are preceded by the banking sector trying to produce super-safe assets when short-term government debt is in short supply. The banking sector's attempt at supplying riskless assets inevitably fails, leading to a financial crisis.

### **SHARING RISK MORE BROADLY**

The risk-sharing principle underlying SRMs applies in many other contexts. For example,



The debt that a national government issues is called sovereign debt, and it has the unfortunate catch that the amount owed does not change unless the country is prepared to default on its obligations. Even if the economy plummets and unemployment rises above 25 percent, as it has in Spain, the same interest must be paid on sovereign debt.

A country with debt written in its own currency can reduce the real value of the interest payments by inflating, but countries that had adopted the euro did not have that option. One proposal is for countries to leave the euro and revert to their own currencies. However, the cost of leaving would be bound to be high, as the enforceability of existing contracts denominated in euros would be in doubt.

In a world of more flexible sovereign financing, such a dramatic course of action would be unnecessary.

Mark Kamstra of York University and Robert Shiller of Yale have proposed sovereign bonds where the coupon payment – the regular payment that countries make to investors – would be linked to the nominal GDP of the country. Such a bond would be more equity-like because the investor would experience profits that varied with the fortunes of the country's economy, much like an equity holder receives higher or lower dividends depending on earnings of a corporation. In the case of, say, Spain, such financing would act as an automatic stabilizer: payments on the bonds would immediately fall when the Spanish economy collapsed, providing some relief to Spaniards.

Kenneth Rogoff of Harvard, one of the world's leading experts on financial crises, blames sovereign financial crises squarely on the inflexibility of debt contracts. As he notes, "If [advanced economy] governments stood back and asked themselves how to channel a much larger share of the imbalances into equity-like instruments, the global financial system that emerged might be a lot more robust than the crisis-prone system we have now."


The proverbial devil here would be in the details. Should the payments be linked to GDP growth or to the level of GDP? How could we ensure that the borrowing country didn't manipulate the GDP numbers to re-

duce their obligations? But these complications should not cloud the overarching goal: to make the international financial system more efficient at sharing macroeconomic risk.

The banking system also needs more risk sharing, something Anat Admati of Stanford and Martin Hellwig from the University of Bonn have articulated. They call for regulators to require more equity financing on the part of financial institutions, which would help insulate the financial system from the sorts of shocks we have seen in the recent past. If banks were funded with more equity, they would not be forced to default on debt when their assets fell. More equity would help prevent banking panics and make it less necessary for central bankers to intervene.

#### **A FINANCIAL SYSTEM THAT WORKS FOR US**

Many of our proposals may sound radical – but only because the financial system is so far from where it should be. Households ought to be able to use the system to share the risks associated with purchasing a home or an education. Investors, for their part, should be encouraged to bear some risk to earn a legitimate return not dependent on subsidies. The source of the dysfunction is the terms of the conventional debt contract, and the solution is straightforward: the financial system needs to adopt more equity-like contracts that create no moral hazard on either side.

We have no illusion about the challenges to moving toward this goal. As it currently stands, the financial system benefits very few people, and those few have a vested interest in staving off any reform that could move us away from debt financing. However, we must try. The alternative is to continue down the road of unsustainable debt binges and  painful crashes.