

The Macroeconomic Advantages of Softening Debt Contracts

*Atif Mian and Amir Sufi**

INTRODUCTION

Household debt is dangerous. Government policy should not encourage its overuse during good economic times and should facilitate reductions in debt burdens during bad times. One could justify these claims with an appeal to fairness or other distributional considerations, and we are sympathetic to such arguments. But we do not believe such a justification is necessary. Instead, debt has negative properties for the entire economy, and ultimately all parties—creditors and debtors—should prefer a world with less debt and more debt forgiveness. The ancient Mesopotamians knew this to be true; their Code of Hammurabi stated, “If any one owe a debt for a loan, and a storm prostrates the grain, or the harvest fail, or the grain does not grow for lack of water; in that year he need not give his creditor any grain, he washes his debt-tablet in water and pays no rent for this year.”¹

Debt is a financial contract that places a disproportionate amount of the underlying economic risk on the debtor. Mortgages illustrate this characteristic. In a mortgage contract, the underlying economic risk is the price of the home. If a homeowner buys a \$100,000 house with an \$80,000 mortgage, she retains twenty percent of the equity in the home, worth \$20,000. If the price of the house falls twenty percent, the mortgage remains \$80,000 but the house is only worth \$80,000. The homeowner’s \$20,000 of equity has disappeared. House prices fall twenty percent, but the homeowner’s equity is reduced by one hundred percent. This is the effect of debt. Debt forces all of the losses on the debtor before the lender sees a drop in the value of the loan. As we will explain below, this unequal sharing of the losses is crucial to understanding why debt is so dangerous for the overall economy.

This essay proceeds as follows: first, we discuss the existing empirical evidence on the nature of household debt booms and their implications for the wider economy. In particular, we show that debt booms are not typically driven by an improvement in the fundamental economic position of borrowers, but instead tend to be driven by a willingness of lenders to supply more credit. Credit-demand factors, such as better income prospects or a new promising technology, are not the typical drivers of debt booms; instead, credit-supply factors play the dominant role as lenders search for riskier in-

* Atif Mian is Theodore Wells '29 Professor of Economics and Public Affairs at Princeton University. Amir Sufi is Bruce Lindsay Professor of Economics and Public Policy at the University of Chicago Booth School of Business.

¹ As translated by The Avalon Project at Yale Law School. *The Code of Hammurabi*, THE AVALON PROJECT, <http://avalon.law.yale.edu/ancient/hamframe.asp> [<https://perma.cc/PL2N-K3N6>].

vestment opportunities. We show that a large sudden increase in household debt predicts economic downturns. Further, debtors tend to cut back on spending more dramatically when the downturn occurs.

We then discuss the underlying theoretical framework that is most consistent with these facts, and highlight the important role of government intervention in such a framework. The correct model has a number of important properties. For example, the fact that credit-supply-induced lending booms lead to economic downturns and bank equity crashes suggests systematic mistakes in expectations formation by lenders during debt booms, or misrepresentation of information by financial intermediaries to investors. Models must take into account these facts. Further, households during debt booms borrow more than is socially optimal, because they do not internalize the complete macroeconomic effects of potential foreclosures and the decline in spending. Debt has important negative externalities that justify both limitations on debt during booms, and forcing a more equal sharing of losses between creditors and debtors during busts.

We conclude with specific policy recommendations. First, the government must level the playing field by ceasing the large subsidies to debt contracts within the current financial architecture. The government actively promotes the exact financial contracts with bad macroeconomic properties; this must stop. Second, the government should encourage the use of more “flexible” financial contracts that automatically adjust payments in the face of systematic shocks. For example, we discuss the Shared Responsibility Mortgage in which mortgage payments are tied to a house price index so that if house prices fall, mortgage payments are automatically lowered. Alternatively, student debt contracts could be indexed to the unemployment rate faced by graduating students, so that the payments made by students adjust automatically downward during bad economic times. Third, during a crisis brought on by elevated debt burdens, the government should actively facilitate the reduction of debt burdens for borrowers. Such a policy can soften the blow coming from the collapse in consumer spending.

I. DEBT BOOMS AND ECONOMIC DOWNTURNS: THE EVIDENCE

Good economic policy requires an accurate model of how the economic factors at work evolve, and devising an accurate model requires a careful look at the evidence. We present such evidence on the relation between household debt and aggregate economic outcomes in this section.

A. *Predicting Economic Downturns*

There is compelling evidence that rapid expansions in household debt predict severe economic downturns. Mian, Sufi, and Verner (2016) show in a sample of thirty countries, consisting mostly of advanced economies, over the past forty years that an increase in the household debt to GDP ratio over

a three- to four-year period results in a large decline in subsequent economic growth.²

The most famous of these examples occurred during the Great Recession: for example, Greece, Italy, Spain, and the United States witnessed a sharp increase in household debt from 2002 to 2006 followed by a severe recession.³ The systematic relationship, across countries, between the size of the household debt boom and subsequent recession severity during the Great Recession has been documented by Glick and Lansing (2010) and the International Monetary Fund (IMF) (2012).⁴ Countries that experienced the biggest rise in household debt from 2000 to 2007 saw the largest drop in growth from 2007 to 2010.⁵

But the predictive power of an increase in household debt is also present in other countries and time periods.⁶ King (1994) analyzes the rise in household debt across European countries from 1984 to 1988 and finds that a larger rise in a given country predicts a more severe decline in household spending during the downturn from 1989 to 1992.⁷ Many of the countries of East Asia prior to the 1998 financial crisis saw rapid increases in household debt—Thailand in particular.⁸ Jorda, Schularick, and Taylor (2014) demonstrate the ubiquity of the empirical pattern; they use data from seventeen advanced countries from 1870 to the present and show that the most severe recessions are preceded by a large rise in mortgage lending.⁹

Why does elevated household debt predict economic downturns? Evidence from the United States during the Great Recession illustrates a number of important clues. As shown in Mian, Rao, and Sufi (2013), counties in the United States that experienced the largest increase in household debt witnessed the largest decline in house prices and consumer spending during the bust.¹⁰ Further, high mortgage debt and collapsing house prices resulted in a

² See generally Atif Mian et al., *Household Debt and Business Cycles Worldwide* (Jan. 2016) [hereinafter Mian, *Household Debt*] (unpublished manuscript) (on file with the Harvard Law School Library).

³ INT'L MONETARY FUND, *WORLD ECONOMIC OUTLOOK: GROWTH RESUMING, DANGERS REMAIN* 92 (Apr. 2012).

⁴ See generally REUVEN GLICK & KEVIN J. LANSING, *FED. RESERVE BANK OF S.F., GLOBAL HOUSEHOLD LEVERAGE, HOUSE PRICES, AND CONSUMPTION* (2010); INT'L MONETARY FUND, *supra* note 3.

⁵ INT'L MONETARY FUND, *supra* note 3, at 95–96.

⁶ Mian, *Household Debt*, *supra* note 2, at 1.

⁷ Mervyn King, *Debt Deflation: Theory and Evidence*, 38 *EUR. ECON. REV.* 419, 420 (1994).

⁸ From 1990 to 1996, Thailand experienced an increase in household debt of almost fifty percent. See Kiatipong Ariyapruhya, *Thailand's Household Sector Balance Sheet Dynamics: Evidence from Microeconomic and Macroeconomic Data*, *PROCEEDINGS OF THE IFC CONFERENCE ON "MEASURING THE FINANCIAL POSITION OF THE HOUSEHOLD SECTOR"* 91, 92 (2006), <https://www.bis.org/ifc/publ/ifcb25f.pdf> [<https://perma.cc/6V3F-EPAW>].

⁹ See generally Óscar Jordà et al., *The Great Mortgaging: Housing Finance, Crises, and Business Cycles* (Sept. 2014) (unpublished manuscript) (on file with the Harvard Law School Library).

¹⁰ See generally Atif Mian et al., *Household Balance Sheets, Consumption, and the Economic Slump*, 128 *Q.J. ECONOMICS* 1687 (2013) [hereinafter Mian, *Household Balance Sheets*].

tremendous wave of foreclosures, which further depressed house prices and durable consumption.¹¹ A rough estimate in Mian, Rao, and Sufi (2013) suggests that up to forty percent of the overall decline in household spending in the United States from 2006 to 2009 can be explained by elevated debt and the collapse in house prices.¹²

Further, the predictive power of household debt expansion for subsequent economic downturns is strongest for economies with fixed exchange rates, and for those who borrow from other countries.¹³ In other words, countries in which the currency is unable to adjust freely and countries that owe money to foreigners in foreign currency are most adversely affected after sharp increases in household debt. Both of these results highlight the importance of rigidities such as inflexible wages and prices or currency mismatch of liabilities in explaining why debt booms are followed by economic downturns.

B. Credit Supply, Behavioral Factors, and Fraud

It is crucial to understand the sources of the rise in household debt to accurately model the link between household debt expansions and economic activity. For example, in one view of the world, a sudden rise in household debt corresponds to credit-demand factors such as an improvement in economic opportunities or income.¹⁴ More specifically, if a country obtains a new technology that will ultimately lead to an increase in economic output, households in that country may want to borrow to spend today out of the future income that will be realized.¹⁵ This is the traditional view in the macroeconomics literature: a rise in borrowing occurs because a country has promising growth opportunities. This is closely related to the permanent income hypothesis at the individual household level: households borrow during times when their income is low, but they expect their income to be high going forward.

As is obvious given the results described above, the data contradict the credit-demand view of household debt expansions. The credit-demand hypothesis implies a *positive* relation between contemporaneous debt growth and subsequent economic growth, whereas the data show a strong *negative* effect of debt expansion on future growth. Further, an increase in credit demand should lead to a rise in household debt together with a simultaneous *increase* in interest rates. If the willingness of lenders to lend is fixed and

¹¹ See Atif Mian et al., *Foreclosures, House Prices, and the Real Economy*, 70 J. FINANCE 2587, 2618–19 (Dec. 2015) [hereinafter Mian, *Foreclosures*]; see also Elliot Anenberg & Edward Kung, *Estimates of the Size and Source of Price Declines Due to Nearby Foreclosures*, 104 AM. ECON. REV. 2527 (2014) (showing the negative effect of foreclosures on house prices).

¹² Mian, *Household Balance Sheets*, *supra* note 10, at 1714.

¹³ Mian, *Household Debt*, *supra* note 2, at 3.

¹⁴ See, e.g., Mark Aguiar & Gita Gopinath, *Emerging Market Business Cycles: The Cycle is the Trend*, 115 J. POL. ECON. 69, 78 (2007).

¹⁵ Mian, *Foreclosures*, *supra* note 11.

households desire more credit, interest rates must rise to restore equilibrium in the lending market. In fact, the exact opposite pattern occurs in the data: the most dramatic increases in household debt tend to occur as interest rates *decline*.¹⁶

A simultaneous decline in interest rates and a rise in household debt is the hallmark pattern of an outward shift in the credit supply curve. Put differently, expansions in household debt are driven by creditors becoming more willing to lend to households at lower rates, as shown by Mian, Sufi, and Verner (2016).¹⁷ This is a crucial insight that must play a prominent role in any model describing the use of debt in an economy. Times of quickly rising household debt are not usually associated with fundamental improvements in the economy; instead, they are driven by lenders flush with cash looking for new borrowers.¹⁸

The dramatic expansion of lending to low credit score individuals in the United States from 2002 to 2005 supports this view. As shown by Mian and Sufi (2009), zip codes with low credit score individuals saw unprecedented growth in the origination of mortgages for home purchase during this period, as subprime mortgage lending expanded.¹⁹ However, measures of income in these same zip codes actually declined.²⁰ It is difficult to explain the expansion of subprime lending in the United States from 2002 to 2005 with an improvement in income prospects of low credit score borrowers. Instead, lenders became more willing to lend to low credit score individuals for reasons independent of improving income prospects.²¹

Why do lenders all of a sudden expand lending at lower interest rates? Or in other words, what is the source of the increase in credit supply? There is less evidence on this question, but deviations from purely rational lending decision models are likely at play. For example, Mian, Sufi, and Verner (2016) show that economic forecasters during credit booms fail to see the impending economic downturn that follows. Given the historical relation between household debt expansions and subsequent economic growth, forecasters should understand that economic growth will be subdued after an expansion in household debt. But forecasters fail to make the connection, leading to systematic forecasting errors.

A recent study by Baron and Xiong (2016) demonstrates that investors in banks fail to understand the negative effects of expanding credit.²² More specifically, they examine the stock markets of twenty advanced countries

¹⁶ Mian, Household Debt, *supra* note 2, at 27–28.

¹⁷ *Id.* at 28 n.26

¹⁸ *See id.* at 10.

¹⁹ *See* Alejandro Justiniano et al., *A Simple Model of Subprime Borrowers and Credit Growth*, AM. ECON. REV. 543, 543 (2016); Atif Mian & Amir Sufi, *Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis*, 124 Q.J. ECONOMICS 1449, 1450 (2009) [hereinafter Mian, *Consequences*].

²⁰ Mian, *Consequences*, *supra* note 19, at 1463.

²¹ *Id.* at 1477.

²² *See generally* Matthew Baron & Wei Xiong, *Credit Expansion and Neglected Crash Risk* (Aug. 2016) (unpublished manuscript) (on file with the Harvard Law School Library).

from 1920 to 2012, and they show that an expansion in bank credit to GDP over a three-year period predicts subsequent crashes in bank stock prices. In a model of rational investors, it is difficult to envision that any observable variable known in advance such as bank credit expansion should predict a subsequent crash in stock prices, and yet this is precisely what Baron and Xiong show.²³

Related to this finding is research by Fahlenbrach, Prilmeier, and Stulz (2016). Using a sample of U.S. banks from 1973 to 2014, they show that banks that expanded lending the most in recent years subsequently experienced the worst stock returns.²⁴ More specifically, they sort banks in any given year based on loan growth in the past three years, and they show that banks that have expanded lending the most in the past three years experienced, on average, the lowest subsequent stock returns, while those expanding the least saw the best.²⁵

An alternative viewpoint stresses the importance of fraud in explaining why financial intermediaries expand lending so dramatically during booms. In this view, bankers, mortgage brokers, or other intermediaries purposely mislead the investors from which they receive funds. There is substantial evidence of widespread fraud by the financial sector during the housing boom in the United States from 2000 to 2007.²⁶ For example, we know that arrangers of private-label mortgage securitization pools systematically misled investors on the underlying characteristics of their mortgage.²⁷ We also know that the income of borrowers was systematically overstated by mortgage originators on mortgage applications.²⁸ It seems likely that both fraud and mistaken beliefs play important roles in fueling the increased willingness of the financial sector to lend during credit booms.

²³ Their measure of bank credit expansion includes both loans to households and loans to non-financial firms. *See id.* at 7.

²⁴ *See* Rudiger Fahlenbrach, et al., *Why Does Fast Loan Growth Predict Poor Performance for Banks?* 29–30, 41 (Mar. 2016) (unpublished manuscript) (on file with the Harvard Law School Library).

²⁵ *Id.* at 3, 11, 14, 53.

²⁶ *See, e.g.*, John M. Griffin & Gonzalo Maturana, *Did Dubious Mortgage Origination Practices Distort House Prices?*, 29 *REV. FIN. STUD.* 1671 (2016) (finding excess credit facilitated through dubious origination practices, explain much of the regional variation in house prices over a decade); John M. Griffin & Gonzalo Maturana, *Who Facilitated Misreporting in Securitized Loans?*, 29 *REV. FIN. STUD.* 384 (2016) (examining fraud among securitized non-agency loans using three indicators: unreported second liens, owner occupancy misreporting, and appraisal overstatements); Tomasz Piskorski et al., *Asset Quality Misrepresentation by Financial Intermediaries: Evidence from the RMBS Market*, 70 *J. FINANCE* 2635 (2015) (explaining that investors—including large institutions—holding securities with misrepresented collateral suffered severe losses due to loan defaults, price declines, and ratings downgrades); Atif Mian & Amir Sufi, *Fraudulent Income Overstatement on Mortgage Applications During the Credit Expansion of 2002 to 2005* (June 2016) (unpublished manuscript) (on file with the Harvard Law School Library) (finding a positive gap between zip code level income growth calculated from mortgage applications and income growth from the IRS likely reflects mortgage fraud).

²⁷ Piskorski, *supra* note 26, at 2672–73.

²⁸ *Id.*

C. *Differential Marginal Propensities to Consume*

An important object in economic analysis is a household's marginal propensity to consume out of income or wealth shocks, or its "MPC." The MPC measures how much a household spends out of a one-dollar change in income or wealth. If a \$20,000 decrease in house prices leads to a \$2,000 reduction in spending, the household has an MPC out of housing wealth shocks of 0.10, or ten percent.

Empirical analysis reveals a strikingly larger MPC for indebted households. For example, Mian, Rao, and Sufi (2013) show an MPC out of housing wealth shocks for households with a mortgage loan to home value ratio above ninety percent that is three times larger than households with the same ratio below thirty percent.²⁹ Disney, Gatherhood, and Henley (2010) examine data for the United Kingdom and show that homeowners for whom the mortgage balance is greater than the value of the home—"underwater" homeowners—have a higher spending sensitivity to wealth shocks.³⁰ Baker (2014) finds that individuals with high debt see a larger response of spending to income shocks such as an unemployment spell.³¹ He concludes based on this larger response that the drop in household consumption during the Great Recession was twenty percent larger than what it would have been had households entered the recession with leverage at 1983 levels.³²

II. THE RIGHT MODEL AND ITS GENERAL POLICY IMPLICATIONS

Given the empirical results above, we are now ready to discuss the right economic model to help guide policy. We first discuss the basic model, and then discuss the general policy implications of the model. In particular, the government should stop actively subsidizing the use of debt, it should consider restricting debt during credit booms, and it should actively work to reduce debt burdens in the face of a crisis.

A. *The Right Model to Evaluate Policy*

The facts shown in Part II suggest three key components of the correct economic model of debt booms. The first main component is that debt booms are driven by an increasing willingness of financial intermediaries to lend, not by an improvement in the actual position of borrowers. Behavioral

²⁹ Mian, *Household Balance Sheets*, *supra* note 10, at 1689. The unit of observation is a zip code, and the spending measure is purchases of new automobiles. *Id.* at 1720.

³⁰ See Richard Disney et al., *House Price Shocks, Negative Equity, and Household Consumption in the United Kingdom*, 8 J. EUR. ECON. ASS'N, 1179, 1204–05 (2010).

³¹ See Scott Baker, *Debt and the Consumption Response to Household Income Shocks* (Apr. 2014) (unpublished manuscript) (on file with the Harvard Law School Library) (exploring whether consumption among households with higher levels of debt is more sensitive to a given change in income).

³² *Id.* at 1.

biases such as an underestimation of default risk fuel this increased willingness to lend, and rapid shifts in lender sentiment may also explain why debt booms eventually collapse. These features have been formally modeled by Bordalo, Gennaioli and Shleifer (2015);³³ Geanakoplos (2010);³⁴ Gennaioli, Shleifer, and Vishny (2012);³⁵ Landvoigt (2016);³⁶ and Simsek (2013).³⁷

One of the interesting features of the models in Geanakoplos (2010) and Gennaioli, Shleifer, and Vishny (2012) is that debt itself is crucial to driving the boom because of its effect on asset prices. In Geanakoplos (2010), debt plays an important role because it transfers buying power from more pessimistic individuals to more optimistic individuals.³⁸ Optimists who believe asset prices will rise substantially (e.g., homebuyers) bid up asset prices by using debt provided by less optimistic individuals (e.g., investors in mortgage-backed security pools).³⁹ Debt itself is crucial in generating an increase in asset prices, which often then leads to even more debt as homeowners borrow against rising home values. In Gennaioli, Shleifer, and Vishny (2012), investors neglect certain risks such as a decline in house prices. Debt preys on exactly this mistake by guaranteeing payment in all future scenarios except when house prices fall.⁴⁰ Landvoigt (2016) argues that misperception of the true default risk on mortgages is a crucial ingredient in explaining why credit supply fuels an increase in debt and house prices.⁴¹

These formal models confirm the empirical insights by renowned economic historian Charles Kindleberger. In his famous anthology of financial crises, he writes that in many booms “[T]he expansion of credit resulted from the development of substitutes for what previously had been the traditional monies.”⁴² In other words, asset price booms are financed with debt that appears “safe” as money. He concludes also that “asset price bubbles depend on the growth in credit.”⁴³ There is a strong historical link between debt, asset price booms, and subsequent financial crises.

The second main component of the correct economic model is an appreciation of differences across those who take on heavy debt burdens and

³³ See generally Pedro Bordalo et al., *Diagnostic Expectations and Credit Cycles* (Nov. 2015) (unpublished manuscript) (on file with the Harvard Law School Library).

³⁴ See generally John Geanakoplos, *The Leverage Cycle*, 25 NAT'L BUREAU ECON. RES. MACROECONOMICS ANNUAL 1 (2010).

³⁵ See generally Nicola Gennaioli et al., *Neglected Risks, Financial Innovation, and Financial Fragility*, 104 J. FIN. ECON. 452 (2012).

³⁶ See generally Tim Landvoigt, *Financial Intermediation, Credit Risk, and Credit Supply during the Housing Boom* (Aug. 2016) (unpublished manuscript) (on file with the Harvard Law School Library).

³⁷ See generally Alp Simsek, *Belief Disagreements and Collateral Constraints*, 81 ECONOMETRICA 1 (2013).

³⁸ Geanakoplos, *supra* note 34, at 3

³⁹ *Id.*

⁴⁰ Gennaioli, *supra* note 35.

⁴¹ Landvoigt, *supra* note 36, at 41.

⁴² See generally CHARLES KINDLEBERGER & ROBERT ALIBER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (5th ed. 2005).

⁴³ *Id.* at 55.

those that do not. In particular, the borrowers taking on debt have a high MPC, which means their borrowing during boom times fuels the economy in a potentially artificial and dangerous manner, and concentrating losses on borrowers during bad times will lead to a dramatic decline in spending. It should be no surprise that debt booms lead to economic downturns in large part because household spending collapses. Debt as a financial contract concentrates losses on exactly the party most likely to cut spending. This important source of heterogeneity is modeled by Eggertsson and Krugman (2012) and Guerrieri and Lorenzoni (2015).⁴⁴

The third main component is that there are important negative externalities from the collapse of debt-fueled bubbles. In other words, there are negative effects of debt that are not borne by the creditor and lender in a private lending relationship. One source of such externalities is associated with the sale of assets at considerably lower prices during the bust, a phenomenon known as a “fire sale” in the economics literature. For example, a lender is likely to sell a foreclosed home at a considerable discount during the nadir of the housing market. The importance of fire sales of assets in depressing prices and economic growth is well established theoretically.⁴⁵ Lorenzoni (2008) formally models this idea and shows that lenders and borrowers fail to internalize the effect of fire sales on asset prices in the future, which means that the economy produces more debt than is socially optimal during the boom.⁴⁶ This argument can be seen clearly in the housing market. Taking on more leverage increases the probability of a subsequent foreclosure, and foreclosures negatively affect neighborhood house prices. When agreeing on a mortgage contract, the borrower and lender fail to take into account the negative effect leverage imposes on others in the neighborhood. As a result, the mortgage is too large from a social perspective.

An alternative source of negative externalities associated with debt is aggregate demand externalities, or the idea that a decline in one’s personal consumption has negative effects on others in the economy. As Korinek and Simsek (2016) illustrate, an economy suffering from too much debt may lead to a situation in which the consumption of one household directly affects the income of others.⁴⁷ This is an old idea going back to Keynesian economics: in the presence of price rigidities and a lower bound constraint on nominal interest rates, aggregate demand externalities emerge where total economic output is lowered as a result of a given household reducing its spending. When a borrower takes on debt during the boom phase of the

⁴⁴ See generally Gauti Eggertsson & Paul Krugman, *Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach*, 131 Q.J. ECONOMICS 1469 (2012); Veronica Guerrieri & Guido Lorenzoni, *Credit Crises, Precautionary Savings, and the Liquidity Trap* (Jan. 2015) (unpublished manuscript) (on file with the Harvard Law School Library).

⁴⁵ See generally Andrei Shleifer & Robert Vishny, *Liquidation Values and Debt Capacity: A Market Equilibrium Approach*, 47 J. FINANCE 1343 (1992).

⁴⁶ See generally Guido Lorenzoni, *Inefficient Credit Booms*, 75 REV. ECON. STUD. 809 (2008).

⁴⁷ See generally Anton Korinek & Alp Simsek, *Liquidity Trap and Excessive Leverage*, 106 AM. ECON. REV. 699 (2016).

cycle, he does not internalize the negative effect of his potential cutback in consumption on the income of others during the bust phase. He therefore borrows more than is socially optimal during the boom.

B. Policy During Normal Times

Armed with the right economic model of debt and economic growth, we are now ready to make general policy recommendations. Left unfettered, the models above suggest that debt reaches dangerous levels during normal times when the economy is not in crisis. A sharp increase in debt often does not reflect strong future economic growth. Instead, debt often rises during times of flawed expectations and widespread fraud by the financial sector.

At the very least, such a model demands that the government should reduce its subsidization of debt financing, especially debt in the household sector. The subsidies to debt in the current system are ubiquitous. The most obvious example is the mortgage interest tax deduction. By permitting taxpayers to deduct mortgage interest, the government incentivizes households to take on debt by entering into a mortgage agreement, rather than avoiding debt by entering into a rental agreement. Perhaps as important are the mortgage contracts deemed “conforming” by the Federal Housing Finance Administration (FHFA), which oversees the Government Sponsored Enterprises (GSEs). These are mortgages that the FHFA allows the GSEs to securitize into government-backed mortgage-backed securities. By declaring straight debt contracts eligible for securitization by the GSEs, the FHFA provides these contracts with a significant cost advantage.⁴⁸ Mortgages with more equity-like characteristics are less likely to emerge in the current biased system.

There are other subsidies that are more subtle but equally important. The loans made by the financial system are assets on the balance sheet of the financial sector, and regulators have built a system that encourages banks to hold safe debt instruments as assets. Banks fund their loans and asset holdings with deposits, debt, and equity financing. Given explicit and implicit subsidies for debt financing, such as deposit insurance and implicit guarantees, banks often try to minimize the equity they use to finance their assets. To ensure that banks do not take extreme advantage of government subsidies when setting their own liability structure, regulation requires banks to finance themselves with a minimum amount of capital (a “capital requirement”), which is another term for equity financing. Equity financing has the advantage of being flexible: a bank can cut its dividend to equity holders more easily than it can default on interest payments to debt holders.

Banking regulation focuses often on the notion of a “risk-weighted” capital requirement, which is a specific amount of equity financing required

⁴⁸ See, e.g., Brent W. Ambrose et al., *The Effect of Conforming Loan Status on Mortgage Yield Spreads: A Loan Level Analysis*, 32 REAL EST. ECON. 541 (2004).

for a given asset held by the bank.⁴⁹ Assets that are perceived to be less risky by the regulator require less equity financing; in this case, the asset is said to have a low “capital charge.” Bank regulators give “safe” debt instruments, such as government bonds or highly rated private bonds, low capital charges. Bankers who focus on minimizing capital charges are therefore incentivized to hold such safe debt instruments as assets. More equity-like loans or other assets are given high capital charges by the regulator, therefore discouraging banks from making such loans or holding such assets. Capital regulation therefore provides a strong disincentive for the financial sector to experiment with more equity-like financial products.

Similar capital frameworks also apply to insurance companies, where the National Association of Insurance Commissioners places assets into six categories based on risk. More risky assets require the insurance company to utilize more equity financing, once again encouraging companies to hold only safe debt instruments.⁵⁰ “Insatiable demand” for such triple-A rated assets is widely blamed for the explosion in subprime mortgage-backed securities and other derivatives on risky mortgages.⁵¹ But why was there such an insatiable demand? It seems clear that much of this demand came from regulation requiring institutions to hold such assets.

The government must remove the biases toward debt from the current system. This is a logical first step. But it may not suffice. As the models above show, even in a system in which debt and equity are on equal footing, too much debt is likely to be produced by the financial sector because of negative externalities.⁵² As a result, we believe there is a strong case for the government to actively encourage the use of more equity-like instruments. We will give more specific recommendations in the next section along these lines. But the general principle is that the financial instrument used to purchase a home or send a student to college should be made *contingent* on economic circumstances. So, for example, a student loan should have an interest payment that automatically declines if the unemployment rate facing recent graduates increases. Or sovereign debt in an emerging economy should have payments that automatically fall if the economy enters into a recession.

The widespread use of more equity-like instruments may lower the likelihood of unsustainable asset price booms from emerging in the first place.

⁴⁹ See Vanessa Le Leslé & Sofiya Avramova, *Revisiting Risk-Weighted Assets: Why Do RWAs Differ Across Countries and What Can Be Done About It?* 4–5 (Int’l Monetary Fund, Working Paper No. 12/90, 2012); see also *U.S. Basel III Final Rule: Standardized Risk Weights Tool*, DAVIS POLK, <http://www.usbase13.com/tool/> [<https://perma.cc/6D4B-5YNU>] (demonstrating how risk-weighted capital requirements work).

⁵⁰ See Darren J. Kisgen & Philip E. Strahan, *Do Regulations Based on Credit Ratings Affect a Firm’s Cost of Capital?*, 23 REV. FIN. STUD. 4324, 4328 (2010) (detailing regulations that reward financial intermediaries with lower capital charges if intermediaries hold highly rated debt instruments as assets).

⁵¹ See, e.g., Ricardo J. Caballero, *The “Other” Imbalance and the Financial Crisis* 1–42 (Nat’l Bureau of Econ. Research, Working Paper No. 15636, 2010).

⁵² See *id.* at 22.

Debt is especially pernicious in fueling asset price bubbles because it gives the investors a false sense of security that their investment is safe. Encouraging the use of investments in which the value declines with the asset price shatters this illusion of safety, thereby making investors less likely to fuel a bubble.

Finally, the model highlighted above justifies the use of restrictions on debt by the financial regulator, what has come to be known as “macroprudential regulation.”⁵³ For example, the financial regulator may impose a limit on the maximum mortgage debt-to-income ratio used in a home purchase. Such regulations have been implemented by financial regulators in many countries, including South Korea, Sweden, Turkey, and the United Kingdom.⁵⁴ Given the novelty of these measures, their effectiveness cannot yet be proven. There is evidence that the imposition of debt-to-income restrictions on mortgages in South Korea lowered house price growth in the short run.⁵⁵

One counter-argument to restrictions on debt is that it would lower consumption for households that are most constrained. Without debt, middle- and lower-income households would fall further behind given stagnant wage growth. On a related point, restrictions on mortgage amounts may impede middle- and lower-income households from buying a home.

On the latter point, restrictions on leverage may lead to less house-price growth during the credit expansion phase of the credit cycle, thereby improving affordability. More generally, our view is that consumption should be determined by long-term permanent income considerations, not temporary fluctuations in the availability of credit. As we have already shown, the short-term boost to consumption that comes with easy credit is commonly followed by an economic downturn. We must look for ways to boost income growth for middle- and lower- class individuals; this is the only sustainable way of increasing consumption.

C. Policy During a Bust

The main policy implication during a bust is simple: the government must facilitate the reduction in debt burdens faced by debtors in the economy. In the model highlighted above, the main driver of economic downturns is the collapse in household spending by debtors. Debt concentrates the losses on debtors, who have the highest MPC out of income and wealth shocks. In other words, debt forces losses on exactly the households least

⁵³ See Korinek & Simsek, *supra* note 47, at 3; see also Emmanuel Farhi & Iván Werning, *A Theory of Macroprudential Policies in the Presence of Nominal Rigidities*, 84 *ECONOMETRICA* 1645, 1648 (2016).

⁵⁴ See C. Lim et al., *Macroprudential Policy: What Instruments and How to Use Them?: Lessons from Country Experiences* 14–16 (Int’l Monetary Fund, Working Paper No. 11/238, 2011).

⁵⁵ See generally Deniz Igan & Heedon Kang, *Do Loan-to-Value and Debt-to-Income Limits Work?: Evidence from Korea* 1–34 (Int’l Monetary Fund, Working Paper No. 11/297, 2011).

able to bear them. If the government can reduce debt burdens for debtors, it can stem the decline in spending during the bust. As the experience of the United States shows, debt burdens eventually fall, regardless of government policy. But without sound policy, debt is reduced through delinquencies and foreclosures, which are especially painful to the overall economy. A more sound approach to debt reduction is required.

Notice that optimal policy does not require the government to use taxpayer funds to reduce debt burdens. Instead, the government should facilitate reductions in debt burdens so as to more evenly share the losses between creditors and debtors. Either helping debtors refinance into lower rates or facilitating principal write-downs can accomplish this goal. If done properly, the reduction in debt burdens ultimately benefits both debtors and creditors through the positive macroeconomic effects of softening the blow to spending.

Such government intervention may be necessary given frictions associated with renegotiation of debt contracts during the bust. For example, securitization impeded renegotiation of mortgages during the Great Recession in the United States.⁵⁶ Further, households with negative equity were unable to refinance into lower rates, even if they continued to be current with payments.⁵⁷

Two government programs during the Great Recession attempted to reduce debt burdens facing households: the Home Affordable Refinancing Program (HARP) and the Home Affordable Modification Program (HAMP). The former program facilitated the refinancing process for homeowners with low or even negative equity in their homes,⁵⁸ while the latter provided mortgage servicers with incentives to lower mortgage balances for homeowners at risk of default.⁵⁹ Research on both programs suggests that their implementation was poor and that far more households should have benefited from them.⁶⁰ However, where the programs were well implemented, the results were quite successful. For example, research shows that HAMP “was associated with a lower rate of foreclosures, fewer delinquencies, support for house prices, and an increase in durable spending.”⁶¹ Research also shows

⁵⁶ See Sumit Agarwal et al., *The Role of Securitization in Mortgage Renegotiation*, 102 J. FIN. ECON. 559, 560 (2011); Tomasz Piskorski et al., *Securitization and Distressed Loan Renegotiation: Evidence from the Subprime Mortgage Crisis*, 97 J. FIN. ECON. 369, 370 (2010).

⁵⁷ See Alan Boyce et al., *Streamlined Refinancings for Up to 13 Million Borrowers 2* (June 13, 2012) (unpublished manuscript) (on file with the Harvard Law School Library).

⁵⁸ See Sumit Agarwal et al., *Mortgage Refinancing, Consumer Spending, and Competition: Evidence from the Home Affordable Refinancing Program 1* (U. of Chi. Law School Kreisman Working Papers Series in Housing Law & Pol’y, Working Paper No. 27, 2015) [hereinafter Agarwal, *Mortgage Refinancing*].

⁵⁹ See Sumit Agarwal et al., *Policy Intervention in Debt Renegotiation: Evidence from the Home Affordable Modification Program 1* (U. of Chi. Law School Kreisman Working Papers Series in Housing Law & Pol’y, Working Paper No. 7, 2012) [hereinafter Agarwal, *Policy Intervention*].

⁶⁰ See Agarwal, *Mortgage Refinancing*, *supra* note 58, at 7–8; Agarwal, *Policy Intervention*, *supra* note 59, at 3.

⁶¹ See Agarwal, *Policy Intervention*, *supra* note 59, at 2.

that HARP boosted durable and non-durable consumer spending, reduced foreclosures, and led to “faster recovery in house prices.”⁶² The evidence suggests that a more aggressive approach to reducing debt burdens of households would have had significant positive effects on household spending during the Great Recession.

The precise form of optimal debt relief is up for debate. Eberly and Krishnamurthy (2014) argue that if the government is going to provide funds to debtors, it should do so by reducing interest payments in the short-run rather than reducing the total principal balance on the mortgage.⁶³ In their model, such a policy sustains household spending more efficiently during the recession, without blowing a hole in the government budget. In *House of Debt*, we discuss the practical ways in which debt burdens could have been reduced during the Great Recession.⁶⁴ These include allowing bankruptcy judges to lower mortgage debt in Chapter 13 bankruptcy or assigning trustees to renegotiate mortgages on behalf of investors.⁶⁵ Policymakers require more research on the precise manner in which debt burdens should be reduced during a debt-induced economic bust. But there is an emerging consensus that a reduction in the burden of debt payments helps stem the decline in spending during the depths of a recession.

III. A GUIDELINE AND SPECIFIC RECOMMENDATIONS

In this part, we first discuss the theoretical motivation for debt from the optimal financial contracting literature and draw an important lesson for policymakers. We then discuss two specific policy recommendations: the shared responsibility mortgage and indexing student debt payments to macroeconomic conditions facing recent graduates.

A. Theoretical Motivation for Debt

Before proposing our specific recommendations, we want to discuss the underlying motivation for debt contracts in the theoretical literature. A skeptic at this point may be asking herself the question: if debt has such bad properties, why do we see so much of it in the economy? This is a legitimate question, and it requires us to review the theoretical motivation behind debt contracts. There is a substantial economics literature, initiated by Townsend (1979), discussing why debt is an optimal contract in many circumstances.⁶⁶

⁶² See generally Agarwal, *Mortgage Refinancing*, *supra* note 58.

⁶³ See Janice Eberly & Arvind Krishnamurthy, *Efficient Credit Policies in a Housing Debt Crisis*, 2014 BROOKINGS PAPERS ON ECON. ACTIVITY 73, 77.

⁶⁴ See generally ATIF MIAN & AMIR SUFI, HOUSE OF DEBT: HOW THEY (AND YOU) CAUSED THE GREAT RECESSION AND HOW WE CAN PREVENT IT FROM HAPPENING AGAIN (2014) (hereinafter MIAN & SUFI, HOUSE OF DEBT).

⁶⁵ See *id.* at 146–48.

⁶⁶ See generally Philippe Aghion & Patrick Bolton, *An Incomplete Contracts Approach to Financial Contracting*, 59 REV. ECON. STUD. 473 (1992); Douglas W. Diamond, *Financial Intermediation and Delegated Monitoring*, 51 REV. ECON. STUD. 393 (1984); Oliver Hart &

The common theme in these models is that debt is optimal because it provides a type of “punishment” mechanism that is good for incentive purposes. For example, in Townsend (1979), equity financing for a business is problematic when investors cannot observe the underlying profitability of the business.⁶⁷ If the dividend to an equity investor is dependent on the profits of the firm, the owner of the firm will underreport profits in order to lower the dividend payment. In the extreme, a company with high profits could pay no dividend by untruthfully reporting zero profits. In such an environment, debt is an optimal contract because the investor is able to foreclose on the underlying business if the debt payment is not made. If the business is truly profitable, then the business owner would rather pay the interest payment than allow the investor to take over the company. Debt is a “hard” claim that involves a threat, whereas equity is a “soft” claim that is subject to gaming by the owner of the firm.

In Aghion and Bolton (1992), contracts cannot be written on true underlying profitability because it cannot be verified in a court of law.⁶⁸ There is an imperfect signal of profitability that parties choose to write into contracts. In Aghion and Bolton’s model, there are low realizations of profitability when it is optimal to shut down the firm and sell the assets to another company, but the owners may not do so because of private benefits they get from running the firm.⁶⁹ In such a situation, a “debt” contract should hand over control of the company to the investor when the imperfect signal implies low profitability. The investor can then take the optimal action: to liquidate.

We can see the intuition of these types of models in the context of household debt by imagining a mortgage in which payments are contingent on the income of the borrower. The problem with such an arrangement is that the borrower can always hide true income, thereby lowering their mortgage payment. A standard mortgage contract removes this problem by threatening the homeowner with foreclosure in case of a missed payment. In such an arrangement, the borrower pays if she is able as long as she values the home. The intuition is that mortgage payments should never be contingent upon something that the borrower can game or manipulate.

These are powerful arguments for debt, and they should not be ignored. However, they cannot explain the prominence of debt in the current economic environment. In all of these theories, the “moral hazard” behavior of the borrower is idiosyncratic. In other words, equity instruments are problematic because they are contingent on some measure of income or profitability that is specific to the borrower, or that the borrower can control. Debt

John Moore, *A Theory of Debt Based on the Inalienability of Human Capital*, 109 Q.J. ECONOMICS 841 (1994); Robert M. Townsend, *Optimal Contracts and Competitive Markets with Costly State Verification*, 21 J. ECON. THEORY 265 (1979).

⁶⁷ See Townsend, *supra* note 66, at 268.

⁶⁸ See Aghion & Bolton, *supra* note 66.

⁶⁹ See *id.*

has the advantage of forcing the borrower to act as if their private information can be seen by all parties. Debt promotes good incentives.

If there is a risk to an entire neighborhood, industry of firms, or country, then this argument falls flat. For example, suppose that there is a risk that house prices fall in the neighborhood of a particular homeowner. This is an observable outcome over which the homeowner has no control. In such a setting, there is no moral hazard benefit to making the homeowner pay the same amount when house prices collapse in the neighborhood. In other words, making the homeowner pay the same amount even though house prices have collapsed does not induce truthful reporting of her income or any other valuable private information. It makes no sense to “punish” the borrower if she has no control over the systematic shock that causes delinquency. The ancient Babylonians understood this well, which is why debt contracts were wiped clean in the face of a drought.

The optimal financial contracts that should emerge from this literature are not the completely inflexible debt contracts we witness in the present economy. Instead, an optimal contract in this setting should “partial” out this systematic risk, by being made contingent on any aggregate outcome over which neither the borrower nor lender has control.⁷⁰ In our view, the fact that the actual debt contracts we see in the economy do not take this contingent form calls into question the empirical relevance of these arguments in favor of debt.

Further, if imperfect information and a poor contracting environment explain the prominence of debt as they do in these models, then improvements in information and contracting should lead to less use of debt over time. There is no doubt that information production has improved dramatically over the past forty years since the optimal financial contracting literature started. Yet, despite the dramatic improvements in the information environment, debt contracts have become even more common than before. For example, the average household debt-to-GDP ratio has risen dramatically over the past fifty years.⁷¹

We believe that the widespread use of debt is not the result of the underlying factors assumed in the financial contracting literature. Instead, we believe the widespread use of debt is a function of the many government programs that explicitly subsidize its use. We have already outlined such subsidies above. We should not take the widespread use of debt as evidence of its optimality; instead, we must recognize that policy choices have encouraged its use.

While we are skeptical that the optimal financial contracting literature explains the widespread use of debt, we do not wish to completely discount

⁷⁰ This criticism of the “debt as an optimal contract” is made in Arvind Krishnamurthy, *Collateral Constraints and the Amplification Mechanism*, 111 J. ECON. THEORY 277 (2003), and Sebastian Di Tella, *Uncertainty Shocks and Balance Sheet Recessions* (Oct. 2015) (unpublished manuscript) (on file with the Harvard Law School Library).

⁷¹ See Oscar Jordà et al., *The Great Mortgaging: Housing Finance, Crises, and Business Cycles* 7–8 (Nat'l Bureau of Econ. Research, Working Paper No. 20501, 2014).

this literature. It offers important guidelines that we utilize in our specific recommendations below. In particular, more equity-like instruments should be made contingent on outcomes over which the borrower has no direct control. For example, it is better to make student debt payments contingent on the unemployment rate facing all college graduates rather than the specific income of the borrower in question. It is also better to make mortgage payments contingent on a zip code level house price index rather than the price of a specific home. Such arrangements reduce the importance of the moral hazard concerns associated with more equity-like instruments.

Tying debt payments to broader measures raises issues of fairness. For example, one may argue that a graduate of the Class of 2009 who found a high paying job should not receive forgiveness on his student debt. Fairness is important, but so are incentives. Refusing to forgive the debt of graduates who find good jobs during the recession discourages students from looking aggressively for a good job. This is a trade-off policy must consider.

B. *Shared Responsibility Mortgage*

What does a more equity-like mortgage look like, and how can the government promote its use? The mortgage contract we promote in *House of Debt* is the Shared Responsibility Mortgage (SRM).⁷² In this mortgage, the principal balance and the interest payments are linked to a local house price index that measures the average value of houses in the zip code of the purchased home.⁷³ If house prices in the neighborhood fall, the principal balance and interest payments automatically adjust downward. This provides relief to the homeowner exactly when it is most needed: when difficult economic circumstances arise in the neighborhood.

One such example of a mortgage would be one in which the principal balance and interest payments adjust downward by the same percentage point as the fall in house prices. So if a homeowner has a monthly payment of \$1,000 and house prices in the zip code fall by twenty percent, the monthly payment automatically adjusts downward to \$800. If house prices rise once again, the monthly payment will increase up to \$1,000, but the payment can never be higher than the original \$1,000 paid when the home was purchased, no matter how high house prices go in the neighborhood.

In return for the protection against house price declines, the lender who provides the mortgage is given an extra payment in case house prices rise and the homeowner sells the home. So for example, if the home increased in value from \$100,000 to \$120,000 and the owner sold the home, a part of the capital gain of \$20,000 would need to be paid to the lender. We calculate that only five to ten percent of the capital gain would be necessary to ensure the lender is properly compensated for the downside protection.⁷⁴ In this

⁷² See MIAN & SUFI, *HOUSE OF DEBT*, *supra* note 64, at 170–80.

⁷³ See *id.*

⁷⁴ *Id.* at 173–74.

example, this calculation implies a payment of \$1,000 to \$2,000 out of the \$20,000 capital gain.

One of the advantages of this product is that the index used in the mortgage is already widely available. House price transactions are public information in most states, and there are commercially available house price indices at the zip code level from companies such as CoreLogic and Zillow. This fact helps remove concerns about flawed indices or gaming by one side of the transaction.

We believe that the government should explicitly promote such a product. The government has been incredibly influential in America's mortgage market since the Great Depression by providing liquidity to mortgage lenders and by lowering the cost of funding mortgages. This consideration is even truer today since ninety-four percent of residential mortgage-backed securities are issued by GSEs.⁷⁵ For better or worse, the government plays an enormous role in mortgage markets.

The GSEs have also historically defined what mortgages are available to market participants. In the 1970s, the GSEs standardized mortgage contracts, such as the thirty-year fixed rate mortgage, for resale to institutional investors. More recently, the Consumer Financial Protection Bureau (CFPB) has defined a "qualified mortgage" to provide clarity to mortgage market participants about the rules governing various mortgage products to prevent the more outrageous terms and practices that contributed to the buildup to the Great Recession.

As highlighted above, current FHFA policy tilts the game toward standard debt contracts. We believe the FHFA should reverse this pattern by declaring the SRM as a conforming mortgage, enabling the GSEs to securitize them into mortgage-backed securities. Such a boost to an equity mortgage will have beneficial economic effects, such as reducing the amplitude of house price booms and busts, and stemming the decline in household spending in case a recession arises.

The FHFA, and potentially the CFPB, should play an important role in setting the SRM contract terms. The SRM is a more complex contract than the thirty-year fixed rate mortgage contract, and more complexity often comes with manipulation and misleading practices by financial intermediaries. For example, we show in Mian and Sufi (2014) that an SRM that has an equivalent interest rate to a thirty-year fixed rate mortgage should only require the homeowner to pay the lender five to ten percent of the capital gain at sale.⁷⁶ One worry would be that a financial intermediary would take advantage of the complexity of the SRM by offering contracts that take much more of the capital gain than is fair. We believe the SRM has

⁷⁵ SEC. INDUSTRY & FIN. MKTS. ASS'N, US MORTGAGE-RELATED ISSUANCE & OUTSTANDING (2016), <https://www.sifma.org/uploadedfiles/research/statistics/statisticsfiles/sf-us-mortgage-related-sifma.xls> [<https://perma.cc/T7BN-4YY9>].

⁷⁶ See MIAN & SUFI, HOUSE OF DEBT, *supra* note 64, at 173–74.

large economic benefits, but its complexity comes with the need of oversight.

C. Indexing Student Debt

The total balance of student debt for U.S. borrowers is \$1.3 trillion, which is more than balances of any other non-mortgage household debt item. A growing body of research suggests that student debt is depressing spending and home ownership among young Americans.⁷⁷

The main problem with student debt is that it forces college and graduate students to bear a disproportionate amount of aggregate economic risk. In October 2007, before the worst of the Great Recession hit, the unemployment rate facing college students that had graduated in the previous spring was eight and a half percent.⁷⁸ In October 2009, the unemployment rate for students that had graduated in the previous spring had jumped to almost eighteen percent.⁷⁹ The employment prospects of college graduates are risky because of business cycle fluctuations, and no given student has any control over this risk. Further, research shows that students that graduate in the midst of an economic downturn see lower wages and worse jobs long into the future.⁸⁰ The effects are large, negative, and persistent.⁸¹

The economic opportunities for college graduates plummet if they happen to graduate during a recession. But their debt obligations do not adjust—they owe exactly the same interest and principal payments no matter what the condition of the aggregate economy upon graduation. Debt remains the same, even though the economic circumstances of the graduates have changed dramatically. This results in college students bearing a huge amount of economic risk. As currently structured, the student loan system places the largest risk on exactly the individuals least able to bear it: young Americans with almost no savings.

The solution we propose is in the spirit of the more “equity-like” mortgages discussed above. For example, federal student loans could be indexed to the unemployment rate facing new college graduates. If the unemployment rate is high, then the interest payments and principal balance of the loan should be lowered automatically. This is a better contract that helps

⁷⁷ See, e.g., Meta Brown & Sydnee Caldwell, *Young Student Loan Borrowers Retreat from Housing and Auto Markets*, FED. RESERVE BANK N.Y.: LIBERTY STREET ECON. BLOG (Apr. 17, 2013), <http://libertystreeteconomics.newyorkfed.org/2013/04/young-student-loan-borrowers-retreat-from-housing-and-auto-markets.html> [<https://perma.cc/94T2-5WA8>].

⁷⁸ These figures are calculated from the BUREAU OF LABOR STATISTICS, *The Employment Situation: October 2007* (Nov. 2, 2007), <http://www.bls.gov/news.release/archives/empst11022007.pdf> [<https://perma.cc/FYM9-YY6F>].

⁷⁹ BUREAU OF LABOR STATISTICS, *The Employment Situation: October 2009* (Nov. 6, 2009), <http://www.bls.gov/news.release/archives/empst11062009.pdf> [<https://perma.cc/WNY6-YY2Y>].

⁸⁰ See generally Lisa B. Kahn, *The Long-Term Labor Market Consequences of Graduating from College in a Bad Economy*, 17 LAB. ECON. 303 (2010).

⁸¹ See, e.g., *id.* at 312.

share the risk associated with economic downturns. This would fit directly within the government's charge to stabilize the economy during an economic downturn. It would even be advisable to implement this idea retrospectively. For example, the federal government could forgive student debt for college graduates in the classes of 2008, 2009, and 2010, who graduated in the midst of a horrible job market.

Our proposal is similar to proposals to allow students to refinance into lower interest rates that currently prevail. Given that interest rates fall during recessions, allowing debtors to refinance into lower interest rates provides exactly the cushion needed when bad times arise. However, we believe that the contracts should automatically adjust; various frictions can impede refinancing efforts if we require borrowers and lenders to renegotiate terms when interest rates fall. We worry that a large number of eligible debtors would not benefit unless there is an automatic adjustment.

CONCLUSION

In this essay, we have attempted to build the case for "softening" debt contracts. By softening, we mean two separate ideas. First, during normal times, the government should cease its subsidization of inflexible debt contracts, and instead promote the use of more equity-like contracts where payments automatically fall in case of difficult economic circumstances. Second, in response to a crash that leaves many households overly indebted, the government should facilitate the reduction of debt burdens facing households. We believe the pursuit of these two policy goals would help soften the economic blow associated with the collapse of a debt-fueled asset price boom. Further, limits on the use of debt during normal times may even prevent the asset price boom from happening in the first place.

We have made two specific policy recommendations that should be implemented in the current economic environment. First, the federal government—through the FHFA and the GSEs it oversees—should promote the use of more equity-like mortgage contracts. Second, the federal government should use its position as the primary provider of student loans to build in safeguards that trigger a decline in student debt burdens if economic conditions falter. We believe both policies would have significant positive economic impacts.

Our call for government intervention may fall flat on those skeptical of the government's ability to do better than the private market. But it is important to remind skeptics that the current system is one in which the government *actively promotes and subsidizes* the use of inflexible debt contracts. We do not currently have a level playing field. Even skeptics of government intervention should welcome our proposals to limit such subsidies.