THE BEHAVIORAL LAW AND ECONOMICS OF FIXED-RATE MORTGAGES (AND OTHER JUST-SO STORIES)

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The Behavioral Law and Economics of Fixed-Rate Mortgages (and Other Just-So Stories)

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Abstract

A major cause of the recent financial crisis was the traditional American mortgage, which is distinctive for the following features: it is a thirty-year, self-amortizing loan with an unlimited right to prepay. The United States is unique in the world for standardizing on a mortgage product with these features. Yet not only have a majority of the foreclosures that occurred during the financial crisis been fixed-rate mortgages, the fixed-interest-rate characteristics have undermined efforts by the Federal Reserve and government to assist recovery of the housing market. Moreover, the long fixed-rate term and ability to refinance are highly expensive and suboptimal features for many consumers. Nevertheless, many consumers persist in purchasing this mortgage. Drawing on the methodology of behavioral law and economics, this article provides rationalizations for how behavioral law and economics can explain the persistence of a product that is so harmful to many consumers and to the economy at large. The article then draws conclusions about what this analysis means for the behavioral law and economics research program generally and for the use of behavioral law and economics in government policymaking.

I. Introduction

The housing foreclosure crisis, accompanying banking crisis, and subsequent recession that began in 2007 and continues unabated today, have delivered a powerful challenge to the traditional model of housing and mortgage financing in the United States. The massive taxpayer bailouts of Fannie Mae and Freddie Mac have caused politicians and commentators to reevaluate the housing finance market structure that has predominated in the United States over the past several decades. Coming on the back of the savings and loan crisis of the 1980s, which was also driven fundamentally by housing finance problems, the antiquated model of housing finance in the United States has been subject to increasing criticism and calls for reform.

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At the heart of this challenge is—or should be—increasing criticism of the traditional mortgage that has dominated the housing market in the United States since the Great Depression. The traditional American mortgage has a number of distinctive attributes: it is a thirty-year, self-amortizing, fixed-rate loan with an unlimited right of the borrower to prepay (and hence to refinance) at any time. First introduced as an emergency measure to respond to plummeting housing prices and accompanying foreclosures in the midst of the Great Depression, the American market has subsequently standardized on the product, which, despite its drawbacks, has remained the dominant home financing tool in the American economy since that time.

But this product has come under increasing pressure from experts in residential real estate finance, who have blasted the traditional thirty-year mortgage as robbing homeowners of hundreds of millions of dollars every year in higher costs and interest rate payments and for its role in repeatedly bringing the American financial system, and the American economy, to the brink of catastrophe.[1] Yet, despite these problems, not only has the traditional mortgage retained its dominance in the United States for decades, one result of the most recent financial crisis may be to entrench its dominance.[2]

This article seeks to address the question of the continued market dominance of the traditional thirty-year fixed-rate mortgage, despite its high cost to consumers and the economy. This article identifies a number of cognitive biases behavioral law and economics has identified that could be used to explain consumers' persistence in overpaying for fixed-rate mortgages and the systemic risk to the American financial system and economy that has been caused by

[1] See, for example, Michael Lea and Anthony Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* (Mercatus Center Working Paper No 11-15, March 2011), online at http://mercatus.org/publication/do-we-need-30-year-fixed-rate-mortgage (visited May 2013).

[2] See Christopher Matthews, *President Obama, Defender of the 30-Year, Fixed-Rate Mortgage*, Time.com, (Aug 8, 2013), online at http://business.time.com/2013/08/08/president-obama-defender-of-the-30-year-fixed-rate-mortgage/ (visited August 2013).

standardizing on this particular product. Behavioral law and economics challenges the presumption that consumers can be best modeled as rational utility maximizers, instead offering a model animated by claims about limitations on individual cognition and decision-making skills. Behavioral economics has been increasingly relied on in recent years by legal scholars to identify claimed defects in markets and the ways in which businesses supposedly can and do routinely exploit consumer frailties. Based on these claims, behavioral law and economics also advances a host of normative proposals to reform the operation of markets and consumer decision making. In particular, behavioral law and economics provides a key intellectual underpinning for the Federal Reserve's Consumer Financial Protection Bureau (CFPB), created as part of the Dodd-Frank Financial Reform legislation.[3] In fact, in its proposed rule making on high-cost mortgages issued in 2012, the CFPB relied in part on behavioral law and economics to justify its proposed rules.[4] Leading scholars have also applied behavioral law and economics to mortgage markets specifically[5] and to recommend reform of consumer mortgage regulation based on the insights of behavioral law and economics.[6] Behavioral economics has also figured prominently in many policy innovations of the Obama administration, from the review of major regulations at the Office of Information and Regulatory Affairs in the Office of Management and Budget to the timing and execution of tax cuts. Clearly behavioral law and economics is

[3] See Oren Bar-Gill and Elizabeth Warren, *Making Credit Safer*, 157 U Pa L Rev 1 (2008); see also Joshua D. Wright, *The Antitrust/Consumer Protection Paradox: Two Policies at War with Each Other*, 121 Yale L J 2216 (2012) (describing influence of behavioral law and economics ideas on creation and mission of CFPB).

[4] Bureau of Consumer Financial Protection, High-Cost Mortgage and Homeownership Counseling Amendments to the Truth in Lending Act (Regulation Z) and Homeownership Counseling Amendments to the Real Estate Settlement Procedures Act (Regulation X), 78 Fed Reg 6856, 6943 (Jan 31, 2013), online at http://www.gpo.gov/fdsys/pkg/FR-2013-01-31/pdf/2013-00740.pdf (visited May 2013).

[5] See generally Oren Bar-Gill, *The Law, Economics, and Psychology of Subprime Mortgage Contracts*, 94 Cornell L Rev 1073 (2009).

[6] Michael S. Barr, Sendhil Mullainathan, and Eldar Shafir, *The Case for Behaviorally Informed Regulation*, in David Moss and John Cisternino, eds, *New Perspectives on Regulation* 25 (Tobin Project 2009), online at http://www.tobinproject.org/sites/tobinproject.org/files/assets/New_Perspectives_Full_Text.pdf (visited May 2013).

believed to be a powerful tool for understanding consumer behavior and evaluating consumer protection regulation.

To date, however, no one has turned the gaze of behavioral law and economics onto the traditional thirty-year fixed-rate mortgage—even though most of the mortgages in America are fixed-rate mortgages and even though the majority of loans foreclosed between 2007 and 2010 were fixed-rate mortgages.[7] This article will rectify that oversight. After starting with a brief historical background as to how the thirty-year fixed-rate self-amortizing mortgage with an unlimited right to prepay first came into being, the article will then examine the disastrous consequences that follow from the presumption in favor of the traditional American mortgage for consumers. I will then argue that behavioral law and economics scholars could provide an explanation for why consumers have persisted in seeking out the traditional mortgage, and why lenders have persisted in inducing consumers to overpay for the mortgage, despite its high cost and unsuitability for many consumers. The structure of the traditional American mortgage effectively induces millions of consumers to pay high costs for mortgage features that many of them will never exercise and creates regressive redistributional effects from lower-income and less-sophisticated consumers to higher-income and more-sophisticated consumers. Finally, I will identify some regulatory interventions consistent with behavioral law and economics that could protect consumers from systematically overpaying for fixed-rate mortgages and make it more difficult for lenders to exploit consumer limitations.

II. The History and Economics of the American Mortgage

[7] See Christopher L. Foote, Kristopher S. Gerardi, and Paul S. Willen, *Why Did So Many People Make So Many* Ex Post *Bad Decisions? The Causes of the Foreclosure Crisis* (Apr 2012), on file with author and online at http://www.russellsage.org/sites/all/files/Rethinking-Finance/Willen.rsage_paper_2_11pw.pdf (visited Sept 19, 2013) (stating that fixed-rate mortgages accounted for 59 percent of foreclosures 2007–10).

A. The History of the American Mortgage

The United States is virtually unique in the world in featuring a standard mortgage with the particular characteristics that have traditionally dominated the American mortgage market: its long maturity (thirty years), the fixed interest rate for the entire period, and an unrestricted right to prepay without penalty at any time.[8] According to Lea,[9] 95 percent of mortgages in the United States have these basic characteristics. In the United Kingdom, by contrast, 47 percent of mortgages are variable rate and the remaining 53 percent have fixed rates for five years or less. More than 90 percent of the mortgages in Australia, Ireland, and Spain are variable-rate mortgages. Canada and several European countries have "rollover" mortgages where the rate is fixed for up to five years and then resets into a new fixed rate at the end of the term. These loans also have prepayment penalties during the fixed-rate term. Only Denmark has any significant number of mortgages that resemble those in the United States, and even there a majority of mortgages have fixed rates for ten years or less. In addition, few countries permit prepayment, especially cash-out refinancing transactions where homeowners extract accumulated equity, to the degree allowed in the United States. The refusal of the rest of the world to adopt the American mortgage is not for a lack of knowledge about the product. American financial institutions have attempted to market the American mortgage in the rest of the world, but with little success.[10]

Although the mortgage market structure differs in the United States compared with other countries, there is no discernible difference in homeownership rates comparing the United States

[8] Michael Lea, *International Comparison of Mortgage Product Offerings* *18 (Research Institute for Housing America, Sept 2010), available at http://www.housingamerica.org/rIha/rIha/Publications/74023_10122_research_rIha_lea_report.pdf (visited May 2013).
[9] Id.
[10] Richard K. Green and Susan M. Wachter, *The American Mortgage in Historical and International Context*, 19 J Econ Perspectives 93, 100 (2005).

to other countries. In large part this is because the product characteristics of mortgages are only one of the myriad factors that determine homeownership rates, in addition to cultural norms, policies governing rental housing, and other factors. But the failure of the American mortgage system to noticeably increase homeownership rates above other countries is also precisely because many of the apparent benefits of the traditional American mortgage also have costs, including its long fixed-rate term and its prepayment option. Indeed, perhaps the most distinctive difference between residential real estate markets in the United States and in Europe is that the U.S. residential market has been much more prone to boom-and-bust cycles than that of other countries. This comparative instability is explained in part by the idiosyncratic attributes of the American mortgage.

The "traditional" thirty-year fixed-rate mortgage was itself an accident of history, not a conscious policy choice. It arose as a desperate, government-motivated innovation during the Great Depression to reduce foreclosures by stretching out payment terms for a longer period to reduce monthly payments.[11] Until then, mortgages were of relatively short term (five or ten years), with a variable interest rate, limited principal payment and a balloon payment at the end. Loan to value ratios were very low (50 percent or less); thus lenders carried little risk in the event of default because they could sell the house and recoup any remaining amounts due without fear of losing money. Typically borrowers would refinance the loan at the time the balloon payment was due, but as a result of the crash in real estate values during the Great Depression (housing prices fell by 50 percent or more in much of the country) refinancing became difficult. The federal government responded with a number of programs to stabilize the housing finance market, including the Home Owner's Loan Corporation (HOLC), the Federal Housing Administration (FHA), and the Federal National Mortgage Association (FNMA). The HOLC

[11] Id at 94.

raised funds to purchase defaulted mortgages from financial institutions and reinstated them, converting variable-rate, short-term, nonamortizing mortgages into fixed-rate, long-term (twenty-year), fully amortizing mortgages. The FHA was introduced to provide mortgage insurance so that investors would be willing to buy these restructured mortgages from the government despite their now high loan-to-value ratios. As Green and Wachter note, "the invention of the fixed-rate, self-amortizing, long-term mortgage was, above all else, a response to a general financial crisis, as opposed to a design for the promotion of homeownership per se."[12] Countries without the peculiar experience of the Great Depression and the market interventions that accompanied it did not adopt this unique mortgage finance system. Eventually these pell-mell responses to the Great Depression evolved into the federal government–sponsored enterprise system of Fannie Mae, Freddie Mac, and Ginnie Mae.

The edifice created during the Great Depression first started showing cracks in the mid-1960s when rising interest rates clashed with federal policies (especially Regulation Q) that limited the interest rates that depository institutions could pay customers on savings accounts. As a result of these price controls investment capital flowed out of depository institutions as people sought higher returns elsewhere, especially to U.S. Treasury securities, which were risk-free and paid a market rate of interest. Available funds for mortgage financing dried up, especially at savings and loan institutions which were largely limited to home mortgages and thus were unable to diversity their portfolios.

The combination of high interest rates and government policies created a massive interest rate mismatch problem for savings and loan associations (S&Ls). They were forced to attract short-term deposits in order to fund long-term, thirty-year fixed-rate mortgages. As noted by Benston and Kaufman, "S&Ls were using short-term deposits to finance their long-term fixed-

[12] Id.

rate mortgages, and this mismatch in duration was a disaster waiting to happen."[13] And sure enough, it did. Deposits fled the S&Ls for higher returns elsewhere and rising interest rates shrunk the value of existing portfolios of low-rate fixed-rate mortgages that S&Ls held on their books. In response to this desperate need for funds to close the interest rate mismatch, Congress finally deregulated the S&Ls in the early 1980s, allowing S&Ls to pay market interest rates on some deposits and to make more short-term loans (rather than just long-term mortgages). It was too little, too late—by 1982 approximately 80 percent of the savings-and-loan industry was insolvent, as was Fannie Mae.[14] In order to try to try to fill the holes in their balance sheets created by the asset-liability mismatch, many S&Ls invested in high-yield (and high-risk) assets, safe in the knowledge that the Federal Savings and Loan Insurance Corporation (FSLIC) would make good on any deposits if the institution collapsed. As Lea and Sanders note, although the collapse of the S&L industry is often attributed to excessively risky nonresidential mortgage investments, this story inverts the actual causal direction: deregulation was a response to the already widespread insolvency of S&Ls as FSLIC permitted high-risk, high-yield gambles in order to try to allow S&Ls to dig out of insolvency created by the historical regulatory framework that constrained their operations. Thus, their risky investments were the symptom of the real underlying problem of the asset-liability mismatch in an era of rising interest rates: "the fact was that [S&Ls] were bankrupted by the asset-liability mismatch and tried to grow out of their earning and capital problems through investments in high risk assets."[15] The underlying cause of the S&L crisis, therefore, was the dominance of the thirty-year fixed-rate mortgage and

[13] George J. Benston and George G. Kaufman, *FDICIA after Five Years*, 11 J Econ Perspectives 139, 140 (1997).
[14] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 8 (cited in note 1).
[15] Id at 9 and note 13. The interest rate mismatch also explains why the crisis of the 1980s was limited to S&Ls and did not spread to commercial banks: banks did not face as severe restraints on their operations, thus were not forced to fund long-term fixed-rate assets out of short-term deposit liabilities. Benston and Kaufman,11 J Econ Perspectives at 142 (cited in note 13).

the particular interest-rate mismatch risk it imposed on housing lenders. The later risky behavior was the symptom, not the cause, of this underlying (and inevitable) problem.

The eventual and inevitable crisis created by the interest-rate mismatch, therefore, was entirely predictable in the face of the interaction of rising interest rates in the 1970s and early 1980s and poorly conceived government regulation of deposit accounts. As a result of the obvious instability inherent in using short-term capital markets to fund long-term fixed-rate residential mortgages, banks and thrifts were willing to continue originating thirty-year fixed-rate mortgages only if the loans could be sold to Fannie Mae, Freddie Mac, or insured by the FHA.[16] Unloading mortgage risks onto government-sponsored enterprises (GSEs) doesn't eliminate risk, however; it simply transfers it—as taxpayers have been expensively reminded in the past few years. In fact, although some of Fannie and Freddie's losses in the most recent crisis were caused by speculative investments in subprime and Alt-A backed securities, according to Lea and Sanders a majority of their losses still came from fixed-rate mortgages (FRMs).[17]

B. The Economic Costs of the Traditional American Mortgage for Consumers and the Economy

Despite the damage caused by the S&L crisis and the fallout from the most recent housing crisis, conventional wisdom nevertheless holds that despite the accidental origins of the American mortgage it is actually good for consumers and the economy. In fact, however, the United States is one of only two countries in the world with long-term fixed-rate mortgages and an unlimited right to prepay without penalty, and even in Denmark (the country that most closely

[16] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 9 (cited in note 1); Green and Wachter, 19 J Econ Perspectives at 98–99 (cited in note 10).

[17] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 9 (cited in note 1). Other aspects of these FRMs had changed, however, such as reduced down payments and higher loan-to-value ratios that increased the likelihood of negative equity for borrowers and provided incentives for borrowers to default when housing prices fell.

approximates the United States) the market is less dependent on long-term fixed-rate mortgages than in the United States. Given the accidental birth of the American mortgage during the Great Depression, and the massive subsidies provided through GSEs (Fannie Mae and Freddie Mac) that have been necessary to sustain the product's market position since then, one should be skeptical that this particular form of American exceptionalism actually makes sense. Nevertheless, in light of the widespread belief in the superiority of the American mortgage it is necessary to explain why the rest of the world has rejected the American model.

The positive attributes of the American mortgage are obvious. Its long term and self-amortizing features provide payment stability for consumers over time with the confidence that they will own the home at the end of the thirty-year period. The ability to prepay, and thus refinance, the mortgage provides homeowners with a call option to reduce their interest rates if rates fall.

But these attributes of the American mortgage come at very high cost to homeowners and the economy. Given that all borrowers pay for attributes that likely will be used by only a minority, a huge number of borrowers—likely a majority—would be better off with an alternative mortgage product.

1. Thirty-Year Fixed Interest Rates

Fixed rates provide homeowners with insurance against future interest rate increases, but this insurance comes at high cost. For an adjustable-rate mortgage the borrower bears the risk of future interest-rate fluctuations. For a fixed-rate mortgage the lender bears the risk of future interest-rate fluctuations. Although the cost of this insurance differs over time (depending on expectations of future interest rates and the interest rate spread between fixed- and adjustable-

rate mortgages at any given time) on average the cost of this insurance ranges from about 50 to 120 basis points.[18]

And while fixed interest rates protect consumers against payment increases when interest rates rise, they may also lock in consumers to higher payments when interest rates fall.[19] As then Federal Reserve Chair Alan Greenspan observed in 2004 (prior to subsequent increases in interest rates):

> One way homeowners attempt to manage their payment risk is to use fixed-rate mortgages, which typically allow homeowners to prepay their debt when interest rates fall but do not involve an increase in payments when interest rates rise. Homeowners pay a lot of money for the right to refinance and for the insurance against increasing mortgage payments. Calculations by market analysts of the "option adjusted spread" on mortgages suggest that the cost of these benefits conferred by fixed-rate mortgages can range from 0.5 percent to 1.2 percent [i.e., percentage points], raising homeowners' annual after-tax mortgage payments by several thousand dollars. Indeed, recent research within the Federal Reserve suggests that many homeowners might have saved tens of thousands of dollars had they held adjustable-rate mortgages rather than fixed-rate mortgages during the past decade, though this would not have been the case, of course, had interest rates trended sharply upward.[20]

Similarly, Lea and Sanders provide a chart of mortgage prices collected in February 2011 that reveals a spread of 175 basis points between the market interest rate on a thirty-year FRM and 3:1 ARM. As short-term interest rates fell from 2001 to 2004, American consumers paid hundreds of millions of dollars in higher monthly payments than they would have had they had adjustable-rate mortgages that automatically ratcheted downward when interest rates fell.

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[18] Alan Greenspan, *Understanding Household Debt Obligations*, Remarks at the Credit Union National Association Governmental Affairs Conference (Feb 23, 2004), online at http://www.federalreserve.gov/boardDocs/speeches/2004/20040223/default.htm (visited May 2013).

[19] As will be discussed below, consumers are likely to overweight the risk of rising payments in the future relative to the benefit of falling payments.

[20] Greenspan, *Understanding Household Debt Obligations* (cited in note 18); see also Daniel J. McDonald and Daniel L. Thornton, *A Primer on the Mortgage Market and Mortgage Finance*, 90 Fed Res Bank St Louis Rev 31, 34, table 1 (2008), online at http://research.stlouisfed.org/publications/review/08/01/McDonald.pdf (visited May 2013) ("The differences [between FRMs and ARMs] vary from year to year, but range from about 50 to about 100 basis points. Because ARMs have lower initial interest rate, they are particularly good for individuals who plan either to sell their house or pay off the loan after a short period of time.").

Nor can it be assumed that fixed-rate mortgages are optimal for every, or even most, homeowners. The optimal choice between a fixed-rate and adjustable-rate mortgage depends on a number of different factors. Campbell and Coco note, for example, "FRM contracts expose households to wealth risk, while ARM contracts expose them to income risk: the risk that borrowing constraints will bind more severely when high interest rates coincide with low income and house prices."[21] As a result, the optimal mortgage contract for any household depends on numerous factors, and it is unlikely that fixed-rate mortgages are optimal for many of those who use them. Thus, "while the exact levels of welfare depend on the particular premiums we have assumed for ARM and FRM mortgages, we can draw general conclusions about the types of households that should be more likely to use ARMs. Households with smaller houses relative to income, more stable income, lower risk aversion, more lenient treatment in bankruptcy, and a higher probability of moving should be the households that find ARMs most attractive."

Moreover, the traditional mortgage requires borrowers not only to buy expensive payment insurance but to do so *every month for up to thirty years*. In America today very few homeowners actually keep their current house and their mortgage for thirty years. The average life of a mortgage is approximately five years.[22] Yet because the homeowner retains the option of maintaining the same payment for thirty years, the lender must price the risk accordingly. Moreover, because the outer years of the mortgage bear more interest rate risk to the lender than the more immediate years the borrower is forced to insure the period of the loan with the highest interest-rate risk premium even though the vast majority of borrowers will never use the insurance in the far-out periods of the mortgage. And in order to maintain a constant monthly payment (the point of a thirty-year mortgage) the higher risk on the out years must be paid for

[21] John Y. Campbell and Joao F. Cocco, *Household Risk Management and Optimal Mortgage Choice*, 118 Q J Econ 1449, 1489 (2003).
[22] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 5 (cited in note 1).

even in the more immediate years. Yet homeowners routinely purchase thirty years of interest rate insurance when five or at most ten years typically will suffice, and, even more amazing, governmental policies actually encourage this. Plainly a huge number of borrowers would benefit from a product with a much shorter fixed period (such as five or seven years) followed by an adjustable rate later, rather than a fixed rate for thirty years.

The traditional requirement of a 20 percent down payment also can be very expensive for homeowners. Most families have three sources of wealth: financial capital (stocks and bonds), real property (their home), and human capital (their skills and education). For many consumers there is a high correlation in their wealth holdings for their real property and the value of their human capital. This is because both their employment prospects and the value of their home are highly correlated with their local macroeconomic conditions, such as the local unemployment rate. Higher down payments or other features that increase home equity essentially create dead capital because it is difficult to use those resources for diversified investment purposes, even for a simple savings account at a bank. More accumulated home equity holdings tie one's overall wealth to the value of one's house, thereby reducing the diversification of the household's investment portfolio. Indeed, economists have found that the driving factor for many foreclosures is not the borrower's inability to pay, but rather the decision not to pay when continued investment in the home is not a rational decision in the light of the decline in the underlying asset value, indicating that homeowners do treat their home as an investment as much as for the amenities it generates.[23]

[23] This is referred to as the "option theory" of foreclosure, which models the borrower's default decision as a financial option that is exercised when it is rational to do so. See Patrick H. Hendershott and Robert Van Order, *Pricing Mortgages: An Interpretation of the Models and Results*, 1 J Fin Services Rsrch 19 (1987); James B. Kau and Donald C. Keenan, *An Overview of the Option-Theoretic Pricing of Mortgages*, 6 J Housing Rsrch 217 (1995); Kerry D. Vandell, *How Ruthless Is Mortgage Default? A Review and Synthesis of the Evidence*, 6 J Housing Rsrch 245 (1995).

Empirical evidence demonstrates that the primary reason for the foreclosure crisis was the proliferation of low- and no-down-payment mortgages and other products that reduced the amount of equity in borrowers' homes.[24] And requiring larger down payments would substantially reduce the incentives to default, by reducing the likelihood that a homeowner's default option will be "in the money" when house prices fall. But higher down payments and larger retained equity cushions are *lender* protection devices, *not* borrower protection devices, because they reduce the number of homeowners to rationally default when house prices fall. Under such circumstances the decision to default has nothing to do with a question of affordability—the payment obligation has not changed. It is simply a matter of a change in borrower's incentives. Higher down payments and thicker equity cushions, therefore, make it less likely that the borrower's default option will come into the money, but reducing the borrower's incentives to rationally default benefits lenders, not borrowers. Thus, although lenders are benefited by requiring borrowers to retain larger amounts of equity in their homes, borrowers are harmed by restrictions that these rules impose on their ability to diversify their wealth portfolios and to retain highly liquid precautionary savings. The dominance of this incentive effect of underwater mortgages is suggested by the fact that a majority of mortgages in foreclosure from 2007 to 2010 were fixed-rate mortgages, and were overwhelmingly underwater mortgages with negative equity.[25]

2. Prepayment Penalties

The United States also is almost alone in the world by including a standard provision in mortgage contracts that permits the borrower a unilateral prepayment option, and thus the option

[24] See Todd J. Zywicki and Joseph D. Adamson, *The Law and Economics of Subprime Lending*, 80 U Colo L Rev 1 (2009) (summarizing studies).
[25] See discussion in note 7 and accompanying text.

to refinance, at almost any time.[26] Moreover, most commercial loans and subprime mortgages prohibit or penalize prepayment for certain periods of time at the outset of the mortgage.[27] The real anomaly is that American prime residential mortgages include a right to prepayment, not the quite conventional inclusion of those terms in subprime contracts.

The option to prepay also comes at a cost to consumers, even though many consumers will never exercise it. Borrowers pay a premium of approximately twenty to fifty basis points (i.e., 0.2 to 0.5 percentage points) for the option to prepay (and refinance), and subprime borrowers paid a larger premium than prime borrowers because of the increased and idiosyncratic risk of subprime borrower prepayment.[28] Lea and Sanders, for example, estimate the cost of the prepayment option at about fifty basis points on average.[29] The premium for a prepayment option was even larger for subprime loans: loans that contained prepayment penalties had interest rates fifty-one to sixty-eight basis points lower than mortgages without prepayment penalties, and borrowers with lower FICO scores received larger rate reductions from accepting a prepayment penalty—which can come to hundreds or thousands of dollars a year in higher interest payment obligations.[30] Other mechanisms for guarding against prepayment risk, such as requiring payment of points or upfront fees at the time of closing, can

[26] Green and Wachter, 19 J Econ Perspectives at 100–101 (cited in note 10); Bar-Gill, 94 Cornell L Rev at 1117 (cited in note 5) (noting that the "prepayment option, while ubiquitous in mortgage contracts in the United States, is virtually nonexistent in most other countries").
[27] In fact, the fact that most *commercial* loans include a prepayment penalty should give one pause before inferring that the presence of prepayment penalties in home mortgage contracts reflects oppression of subprime consumers.
[28] See Zywicki and Adamson, 80 U Colo L Rev at 18–20 (cited in note 24); Gregory Elliehausen, Michael E. Staten, and Jevgenijs Steinbuks, *The Effect of Prepayment Penalties on the Pricing of Subprime Mortgages*, 60 J Econ & Bus 33, 34 (2008) (reviewing studies).
[29] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 5 (cited in note 1).
[30] Id. FICO scores are the standardized risk-assessment score available from Fair Isaac. Borrowers with a credit score above 620 are considered prime and those below are considered subprime. FICO score also is taken into consideration in grading subprime borrowers into various grades of subprime in the same way. It is not clear why there is such a bright-line break at 620, but falling on one side or the other of that line is highly significant.

result in rationing of credit to higher-risk or liquidity-constrained borrowers.[31] Reducing the lender's risk of prepayment, therefore, reduces interest rates and monthly payment, making the loan more affordable. As Bar-Gill observes, "[L]oans with prepayment penalties have lower interest rates and thus lower monthly payments."[32] This trade-off presumably explains the absence of any observed correlation between prepayment penalties and higher default and foreclosure rates.[33]

In addition, calculating the optimal decision about prepaying and refinancing a mortgage is an extraordinarily complicated problem.[34] As Bar-Gill observes, "[T]he optimal prepayment problem is so complex that it can be solved only by high-powered computers implementing sophisticated numeric algorithms."[35] In fact, prime mortgage borrowers routinely err in their decision whether to refinance, costing them huge amounts of money. According to one estimate, errors in refinancing decisions (either failing to refinance when it is optimal to do so or refinancing too early) "can cost borrowers tens of thousands of dollars or up to 25 percent of the loan's value."[36] In addition, interest rates will rarely vary so much during the first two to three years of the mortgage (when prepayment penalties typically applied) that refinancing would even

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[31] See Gregory Elliehausen, *Economic Effects of Prepayment Penalties* *3 (Sept 2008) (Working paper, on file with author) (citing multiple studies).
[32] Bar-Gill, 94 Cornell L Rev at 1102 (cited in note 5).
[33] In fact, some scholars have found that mortgages with prepayment penalties have lower default rates. See Chris Mayer, Tomasz Piskorski, and Alexi Tchistyi, *The Inefficiency of Refinancing: Why Prepayment Penalties Are Good for Risky Borrowers* (unpublished manuscript, Feb 12, 2011), online at http://www1.gsb.columbia.edu/mygsb/faculty/research/pubfiles/3065/Inefficiency%20of%20Refinancing.pdf (visited May 2013).
[34] Although some rules of thumb have evolved to guide the decision, they turn out to be imperfect. See Bar-Gill, 94 Cornell L Rev at 1105–06 (cited in note 5).
[35] Id at 1106, citing Sumit Agarwal, John C. Driscoll, and David Laibson, *Optimal Mortgage Refinancing: A Closed Form Solution* *5–6 (National Bureau of Economic Research Working Paper No 13487, 2007), online at http://www.nber.org/papers/w13487 (visited May 2013). See also Bar-Gill, 94 Cornell L Rev at 1117 (cited in note 5) (noting that the prepayment option "protects borrowers from the risk of paying a mortgage interest rate that is substantially above the current market rate" but that the "benefits, however, should be weighted against the difficulty of valuing a mortgage with a prepayment option").
[36] Bar-Gill, 94 Cornell L Rev at 1125 (cited in note 5) (citing Agarwal, Driscoll, and Laibson, *Optimal Mortgage Refinancing* at 25).

make economic sense.[37] The presence of a prepayment penalty in a mortgage can thus save the borrower from the temptation of refinancing prematurely and incurring the costs of refinancing, not to mention time and other search costs spent monitoring mortgage market trends and determining whether and when to refinance.

In general, prepayment risk for specific borrowers is difficult to anticipate and there appears to be no reliable model for predicting it.[38] There is also a problem of asymmetric information, in the sense that borrowers know more than lenders about their ability and propensity to refinance. This suggests that borrowers will have a difficult time accurately sorting borrowers according to their risk of prepaying. This inability to distinguish accurately between high and low prepayment risk creates a "pooling" equilibrium in which borrowers with a lower risk of prepayment subsidize those with a higher risk of prepayment.[39] As Mayer, Piskorski, and Tchistyi observe, accepting a prepayment penalty in a mortgage can provide a credible signal by a borrower that he presents a lower than average prepayment risk, which enables a separating equilibrium to evolve where those who can make the credible signal receive a lower interest rate in exchange. Prepayment risk arises because when prepayment occurs the lender must reinvest the capital at the prevailing market rates and returns, so the lender bears the risk that the new investment will provide a lower interest return than the existing investment. Prepayment typically will occur when market interest rates fall, so the alternative investment usually will be at a much lower rate than the initial loan. In a study of 4.2 million FHA loans Calomiris and Mason estimated that prepayment losses resulting from the reduction in interest rates following a

[37] Christopher J. Mayer, Karen M. Pence, and Shane Sherlund, *The Rise in Mortgage Defaults* (Board of Governors of the Federal Reserve System Finance and Economic Discussion Series Paper No 2008-59, 2008) (noting that in 2007 only 2 percent of subprime mortgages had prepayment penalties whose duration exceeded that of the initial teaser period).

[38] Joseph R. Mason and Joshua Rosner, *Where Did the Risk Go? How Misapplied Bond Ratings Cause Mortgage Backed Securities and Collateralized Debt Obligations Market Disruptions**54 (Hudson Institute, May 2007), online at http://www.hudson.org/files/publications/Hudson_Mortgage_Paper5_3_07.pdf (visited May 2013).

[39] Mayer, Piskorski, and Tchistyi, *The Inefficiency of Refinancing* *5 (cited in note 33).

prepayment amount to about $576 million whereas losses due to default are only about $12 million.[40]

Fixed-rate mortgages combined with an option to refinance (prepayment) also increase the volatility of mortgage origination markets by creating refinancing waves. As Lea and Sanders note, for example, mortgage origination volume rose from less that $3 trillion in 2002 to nearly $4 trillion in 2003 and fell back to less than $3 trillion in 2004.[41] As a result, the industry had to increase capacity by 33 percent in one year and reduce it by 25 percent the following year. Swings of origination volume on such a huge scale can be managed only at very high cost. This volatility in the real estate finance market also contributes to instability in the overall economy.

Moreover, in a period of rising home prices and falling interest rates, homeowner refinancing of mortgages combined with equity withdrawal can create a massive systemic risk problem of highly correlated defaults when housing prices later fall.[42] The easier and less expensive it is to refinance, the larger the size of this systemic risk effect. Long-term fixed-rate instruments are also more sensitive to interest rate change than shorter-term instruments, increasing the volatility of interest rates for consumers and making shopping more difficult.[43] Shorter-term interest rates tend to be more stable.

Finally, and perhaps most important for understanding consumer decision making, not that in contrast to fixed-rate mortgages where the consumer confronts a complex and expensive refinance option in order to lower his interest when market rates fall, adjustable-rate mortgages adjust automatically when underlying interest rates decline.

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[40] Charles Calomiris and Joseph Mason, *Endogenous and Exogenous Mortgage Prepayments in an Optimal Stopping Framework* (Working paper 2007), in Mason and Rosner, *Where Did the Risk Go?* *54 (cited in note 38).
[41] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?*at8 (cited in note 1).
[42]See Amir E. Khandani, Andrew W. Lo, and Robert C. Merton, *System Risk and the Refinancing Ratchet Effect,* (MIT Sloan Research Paper No 4750-09, Feb 2, 2012), online at http://ssrn.com/abstract=1472892 (visited May 2013).
[43] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?*at7 (cited in note 1).

3. Inability to Refinance When Interest Rates Drop

But the potential harm to homeowners from the cost and potential from error from refinancing may pale compared to a larger concern: that homeowners may be unable to refinance *at all* because their homes are "underwater," i.e., she owes more on the mortgage than the current appraised value of the home. Homeowners who have negative equity in their homes can find themselves locked into higher-rate fixed-rate mortgages and unable to refinance to take advantage of lower interest rates. Not only does this have a negative impact on individual homeowners, the inability of underwater homeowners to refinance fixed-rate mortgages can have negative systemic effects for the entire economy.

The inability of underwater homeowners to refinance explains why the easy money policies by the Federal Reserve (holding mortgage interest rates at record-low rates for an extended period following the financial crisis) failed to promote a significant housing recovery. Homeowners who held negative equity positions and would be forced to come up with tens of thousands of dollars to cover the amounts owed on their existing mortgages. Thus, homeowners with negative equity were trapped in higher-rate mortgages and were forced to pay hundreds or thousands of dollars a month in higher interest payments than they would have had they instead had an adjustable-rate mortgage. In turn, this inability to refinance into a lower-interest loan can prompt homeowners to simply default on their mortgage on their current underwater home when they might have been willing and able to keep the loan in good standing had they had sufficient equity to be able to refinance or simply had an automatically adjusting ARM. It wasn't until many of these homes rotated through the foreclosure cycle and were written down to their actual market values that consumers were able to take advantage of the Fed's lower interest rates.

In countries with predominantly adjustable-rate mortgages, by contrast, when their central banks reduce interest rates then mortgage payments automatically fall. Consumers need not incur the cost and inconvenience of refinancing nor do they bear the risk of being trapped in an above-market interest rate because their home is in a negative equity position. For example, the dominance of adjustable-rate mortgages in countries such as England and Spain provides a partial explanation why the real estate bust has been so much more devastating in the United States, even though the United Kingdom suffered a housing price cycle comparable to that here. For example, at the peak of the foreclosure crisis in the United States when the foreclosure rate was 3.31 percent for prime loans (and 4.58 percent for all loans) it was only 0.19 percent in the United Kingdom and for Spain it was 0.24 percent.[44] Because adjustable rate loans are also more responsive to central bank policies, widespread adoption of adjustable rate mortgages increases the tools available to central bankers to address financial and economic crises that arise.

Fixed-rate mortgages combined with a right to prepay also create troubling distributive effects, creating cross-subsidies from less-sophisticated to more-sophisticated consumers. As Lea and Sanders recognize, "In effect, borrowers who don't exercise the option are subsidizing those who do. The subsidy is most often paid by unsophisticated borrowers who are intimidated by the refinance process or credit impaired. The latter are those households most likely to benefit at the margin (i.e., by avoiding default) but least able to refinance."[45] In addition, lower-income households are less likely to have sufficient liquid assets to come up with the several thousand dollars in out-of-pocket costs necessary to refinance a mortgage, much less any

[44]Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 6 (cited in note 1). Although these differences in foreclosure rates were due in large part to the prevalence of adjustable-rate mortgages in those countries, it also reflects other differences, such as the tougher rules governing default and foreclosure in Europe, which reduce the incentive to default. See Oxford Economics, *Why Are US Home Foreclosures So High?* (25 June 2009**)**, online at http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0319.2009.00728.x/pdf (visited Sept 19, 2013).
[45]Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* At 6 (cited in note 1).

additional funds necessary to cover a negative equity position if necessary. This liquidity crunch for low-income households will be exacerbated during a period of recession (as during the past few years). This suggests that even though both high-income and low-income households have a contractual right to refinance, low-income, unsophisticated households will be comparatively disadvantaged relatively to wealthier households by the availability of an option to refinance.

But fixed-rate mortgages increase systemic risk not only when housing prices fall, they also exacerbate systemic risk when housing prices rise by permitting homeowners to engage in cash-out refinancing that enables them to strip equity from their homes when they appreciate in value. Depleting the equity cushion when prices rise increases the likelihood of negative equity, and thus default, when housing prices fall. By contrast, prepayment penalties encourage homeowners to use their equity cushion, thereby softening the blow when housing prices decline. This inability to engage in equity-stripping via cash-out refinancing further explains why countries such as England and Spain have not suffered a foreclosure crisis in response to housing price volatility to the same extent as in the United States.

In fact, from 2003 to 2006 the percentage of refinances that involved cash out doubled from under 40 percent to over 80 percent[46] and among subprime refinanced loans in the 2006–2007 period around 90 percent involved some cash out[47]. Homes that were refinanced more frequently were substantially more likely to end up in foreclosure than loans of the same vintage that were not refinanced as often, which may reflect a greater degree of equity stripping in those

[46]Luci Ellis, *The Housing Meltdown: Why Did It Happen in the United States?* *22, figure 9 (Bank for International Settlements Working Paper No 259, Sept 2008); Joint Center for Housing Studies of Harvard University, *The State of the Nation's Housing* *37, Appendix Table A-4 (2008), online at http://www.jchs.harvard.edu/research/publications/state-nations-housing-2008 (visited May 2013).

[47] Christopher Mayer and Karen Pence, *Subprime Mortgages: What, Where, and to Whom?* (Federal Reserve Board Finance and Economics Discussion Series Paper No 2008-29, 2008), online at http://www.federalreserve.gov/pubs/feds/2008/200829/200829pap.pdf (visited May 2013).

that were refinanced more often.[48] In fact, even though there was a documented rise in loan-to-value (LTV) ratios between 2003 and 2007, even that may underestimate the true increase in the LTV ratio if appraisals for refinance purposes were inflated (either intentionally or unintentionally), as appraisals were believed to be widely inflated at the height of the housing bubble.

4. Summary

Introduced as an expedient to address the foreclosure crisis of the Great Depression, the traditional thirty-year, fixed-rate, self-amortizing prepayable mortgage has proven exceedingly expensive for many consumers who have been induced to pay higher interest rates to buy decades of unneeded insurance against interest rate fluctuations. The harm caused by fixed-rate mortgages to millions of households as well as to the economy itself is manifest: it has led consumers to bear higher monthly payments than they otherwise would, to squander thousands of dollars in closing costs to refinance, and slowed the ability of the Federal Reserve to repair the housing market and stimulate the economy by blocking many consumers, especially underwater homeowners, from taking advantage of the historic-low interest rates created by the Fed to stimulate a housing recovery. The right to prepay and refinance fixed-rate mortgages has led many consumers to refinance even when the costs exceed the benefits and to spend thousands of dollars on closing costs, and has encouraged strategic equity stripping by many households that later was a primary cause of the foreclosure crisis. Many consumers have paid for the right to prepay their mortgage, but only at high cost and inconvenience, and unsophisticated and poorer borrowers have been forced to subsidize higher-income cash-rich borrowers who are more likely

[48] Christopher L. Foote, et al, *Just the Facts: An Initiation Analysis of Subprime's Role in the Housing Crisis*, 17 J Housing Econ 291, 305 (2008).

to exercise their refinance option. And millions of homeowners have paid for a refinance option only to be unable to exercise it when interest rates fell because their homes are underwater and thus they are trapped in more expensive mortgages. Moreover, the consequences for the economy at large from standardization on the thirty-year fixed-rate mortgage have been severe, spawning the S&L crisis of the 1980s and the collapse of Fannie Mae and Freddie Mac in the most recent crisis. In turn, the large number of fixed-rate mortgages in the American economy has reduced the effectiveness of government efforts to revitalize the housing sector by reducing the efficacy of governmental interest-rate stimulus.

As Lea and Sanders observe, advocates of the traditional mortgage characterize it as "the gold standard for mortgages throughout the world." Yet they note that the standardization on the fixed-rate mortgage is "outright dangerous" and that it would better be characterized as "the fool's gold standard for mortgages throughout the United States, offering superior stability for some homeowners and potential catastrophe for U.S. and global financial systems."[49]

III. The Behavioral Law and Economics of Fixed-Rate Mortgages

The preceding section has demonstrated that fixed-rate mortgages are a bad deal for many of the consumers who obtain them—homeowners who hold their mortgages for only a few years, homeowners who never do or never will be able to refinance, and those who refinance repeatedly to strip out equity. In addition to the harm fixed-rate mortgages cause to naïve and uninformed homeowners, the market reliance on FRMs is potentially bad for the economy, leading to unstable waves of refinancing when interest rates fall, increased foreclosures when housing prices fall, and reduced effectiveness of Federal Reserve policy. Why then do so many consumers persist in the error of paying for long-term fixed rates and a right to prepay?

[49]Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 9 (cited in note 1).

Behavioral law and economics might be used to explain the persistent dominance of a product that is so detrimental to so many people and to the economy at large.

Many scholars claim that behavioral economics has revolutionized the study of law and regulation by positing that consumer decision making often deviates from the predictions provided by the rational actor model. And behavioral law and economics might argue that the traditional American mortgage seems designed to exploit many of these consumer biases. Why are mortgages designed to induce consumers to pay for thirty years of interest rate insurance when for most five or ten years would almost certainly be adequate? Why are mortgages designed to require expensive refinancing in order to obtain a lower interest rate rather than a rate that adjusts automatically with market trends? And why do so many consumers pay a premium for a right to prepay and refinance a mortgage when only a minority will actually ever exercise that option and those that do refinance often do so inefficiently? Moreover, why is the American mortgage so distinct from other mortgages in the world—especially when the events of the past several years, not to mention the S&L crisis of the 1980s, have shown the American mortgage to be so prone to instability?

A. Behavioral Biases and Fixed-Rate Mortgages

This section outlines a variety of alleged behavioral biases often relied upon by behavioral law and economics commentators that could explain why many consumers choose the traditional mortgage when they would be better off with an adjustable-rate mortgage or one without a prepayment penalty.

1. Status Quo Bias and the Endowment Effect

One bias often invoked by behavioral law and economics scholars is the so-called status quo bias.[50] The status quo bias is a cognitive bias in favor of the status quo—that is, a type of inertia such that individuals tend not to alter an established behavior unless they have strong incentives to change. Thus, status quo bias can be distinguished from a rational preference for the status quo caused by lack of information about alternatives or by uncertainty about the future.[51]

The status quo bias could be used to explain consumers' preference for fixed-rate mortgages when many would benefit from ARMs instead. Since the Great Depression fixed-rate mortgages have predominated in the market and been favored by government policy and most homeowners receive the traditional mortgage. As a result of all of this, consumers might come to associate fixed-rate mortgages with the status quo, perhaps reinforced by an implicit governmental imprimatur as being a "safe" and "responsible" mortgage. As a result, it may be that many consumers never seriously consider alternatives to the standard mortgage, even if they only plan to keep their mortgage for a few years and never plan to refinance it.

The willingness of many borrowers to pay for a prepayment option that they will never exercise, or often will exercise inefficiently, might also reflect the influence of so-called status quo bias.[52] Behavioral law and economics scholars claim that on issues ranging from the willingness to donate body organs or savings for retirement, individual decisions are inordinately

[50] Barr, Mullainathan, and Shafir, *The Case for Behaviorally Informed Regulation* at 28 (cited in note 6).
[51] See Dan Kahneman, Jack L. Knetsch, and Richard Thaler, *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J Econ Perspectives 193 (1991); William Samuelson and Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 J Risk & Uncertainty 7 (1988).
[52] An adherent to behavioral law and economics might also explain this finding by pointing to the endowment effect, which holds that once a person has acquired a property right, his willingness to accept compensation for a good is higher than his willingness to pay. See Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 Nw U L Rev 1227, 1232-1235 (2003) (concluding that the endowment effect is well-established). In recent, more careful research, however, the purported finding of an endowment effect in earlier studies has been shown to be a function of experimental design, not a robust test of the hypothesis. Charles R. Plott and Kathryn Zeiler, *The Willingness to Pay—Willingness to Accept Gap, the "Endowment Effect," Subject Misconceptions, and Experimental Procedures for Eliciting Valuations*, 95 Am Econ Rev 530 (2005).

dependent on the initial allocation of the default rule.[53] Thus, for example, when countries in Europe reversed the default rule regarding donation of organs upon death, very few people opted out of the default rule, implicitly choosing to donate their organs. But where the rule is the converse, requiring opt-in consent to donate one's organs, few people choose to opt in. Thus, behavioral economists conclude, consumers have an irrational attachment to the default rule, whatever it is.[54]

Behavioral law and economics scholars might point to the status quo bias to explain why, for example, many consumers take out fixed-rate mortgages and pay for prepayment options even when they are not financially sound decisions. Because prime mortgages typically have a right to prepay many borrowers may be reluctant to surrender that right even though for most borrowers it will make sense financially to do so in terms of the trade-off with a lower interest rate or up-front costs. On the other hand, if borrowers did not have the right to prepay (as is the case in the rest of the world), they might be reluctant to pay the premium that would be necessary to buy it back—for example, when prepayment penalties were made the default rule in subprime mortgages, there was no evidence that those borrowers were willing to pay to purchase a prepayment option when it was not part of the default package of terms offered. Because subprime mortgages are a more recent innovation in mortgage financing, there may have been more opportunity for lenders to offer a different—and arguably more efficient—default rule of discouraging prepayment during the first few years of the mortgage as opposed to the traditional practice of permitting (and charging for) prepayment. As noted, refinancing during the early term of a mortgage is likely to be economically detrimental both to the borrower and the lender.

[53] See Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (Penguin 2009).

[54] Again, these conclusions of behavioral economics are accepted *arguendo* for purposes of the argument here. In fact, many consumers may choose to accept the default rule (whatever it is) because of information or transaction costs that are larger than the costs to them of making the "wrong" decision.

In the light of the fact that virtually the entire rest of the world has standardized on limiting mortgage prepayment, as has the commercial real estate market, it seems highly unlikely as an a priori matter that the package of mortgage terms that includes a prepayment penalty is more efficient than that which allows prepayment.

2. Availability Bias

Behavioral law and economics analysts contend that consumers also suffer from an "availability bias." The availability bias (also called "availability heuristic") refers to people predicting the frequency of an event based on how easily an example can be brought to mind.[55] The availability heuristic predicts that consumers may tend to select fixed-rate mortgages or mortgages without prepayment penalties even when doing so is inefficient simply because traditional mortgages are more common in society and the economy and so they are simply more aware of them. As a result, they may provide inadequate analysis of alternatives that might be more suitable, such as adjustable-rate mortgages or those with prepayment penalties or other limits.

3. Loss Aversion

Another bias often relied upon by behavioral law and economics is that of "loss aversion," which refers to individuals' tendency to prefer losses to acquiring gains.[56] This bias tends to make people highly risk-averse and to fear expected losses more than expected gains.

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[55] Amos Tversky and Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 Cognitive Psychology 207 (1973).

[56] Barr, Mullainathan, and Shafir, *The Case for Behaviorally Informed Regulation* at 30 (cited in note 6); Amos Tversky and Daniel Kahneman, *Loss Aversion in Riskless Choice: A Reference-Dependent Model*, 106 Q J Econ 1039 (1991).

The loss aversion bias explains, for example, why consumers might fear potential future interest rate increases more than they value potential interest rate declines even though the two risks are symmetrical.[57] As a result, consumers may irrationally overpay for insurance against interest rate increases while discounting the possible gains that they could receive if interest rates decline instead, even though at any given time there usually is no way to anticipate whether interest rates will rise or fall over time.

4. Identity Salience

Another bias that is claimed to interfere with consumer decisionmaking is "identity salience."[58] This describes the tendency that people "derive their identity in large part from the social groups to which they belong."[59] Identity-salience has been claimed to affect a variety of consumer behaviors, including responsiveness to advertisements, hypothetical choices between items, and the rating of consumer products.[60]

Identity-salience may also contribute to the observed tendency for consumers to obtain the traditional mortgage even when they would be better off with an adjustable-rate mortgage. The traditional thirty-year fixed-rate mortgage has long been considered a badge of respectability for the middle class in America. This identification has become even stronger in recent years as a result of the development and implosion of the subprime mortgage market which was

[57] Note that it is possible that consumers might rationally be risk-averse against interest-rate increases more than they value interest-rate decreases because the income effect from the two adjustments may not be symmetrical, just as consumers often exhibit risk-averse behavior when purchasing insurance because there is no real insurance market and it may be difficult to self-insure. But that would be a theory of rational preference for fixed interest-rates, not an irrational preference.

[58] Michael S. Barr, Sendhil Mullainathan, and Eldar Shafir, *Behaviorally Informed Home Mortgage Credit Regulation* *14 (Joint Center for Housing Studies Working Paper UCC 08-12, April 2008), online at http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/ucc08-12_barr_mullainathan_shafir.pdf (visited May 2013); see also Daniel J. Benjamin, James J. Choi, and A. Joshua Strickland, *Social Identity and Preferences*, 100 Am Econ Rev 1913 (2010); Robyn A. LeBoeuf, Eldar Shafir, and Julia Belyavsky Bayuk, *The Conflicting Choices of Alternating Selves*, 111 Organizational Beh & Hum Decision Processes 48 (2010).

[59] Barr, Mullainathan, and Shafir, *Behaviorally Informed Home Mortgage Credit Regulation* *14 (cited in note 58).

[60] Id.

characterized by a number of mortgage terms that differed from the traditional mortgage market. This association of terms such as prepayment penalties and adjustable-rate mortgages with the subprime market has tended to reinforce the perception of the traditional thirty-year mortgage as the responsible type of mortgage that signifies middle-class respectability. This "identity salience" might lead consumers to overvalue the traditional mortgage even when not suitable for their situation.

5. Overconfidence Bias

Another factor that might affect consumer decision making about mortgages is the overconfidence bias. Consumers may be willing to take a fixed-rate mortgage in the belief that if interest rates fall they will be able to refinance into a lower interest rate. In addition, Bar-Gill and Warren note that "consumers might overestimate their ability to make optimal refinancing decisions."[61] Homeowner also might be overconfident that their house will increase in value (so that they will have positive equity if they choose to refinance) or about the likelihood that they will have (or will be able to save) sufficient liquid assets to pay the closing costs associated with refinancing. As a result of this overconfidence about their ability to refinance in the future they may ignore the benefits of an automatic interest-rate reset under an adjustable-rate mortgage when interest rates fall. During the housing boom, this belief in the ability to be able to refinance in the future was stoked by a widespread belief that housing prices would always increase, a phenomenon which also led consumers to be more willing to strip out equity from their homes at the top of the market, overconfident in their belief that the home would recover value in the future. As a result of this over optimism about the future of home prices and their ability to

[61] Bar-Gill and Warren, 157 U Pa L Rev at 153 (cited in note 3).

refinance in the future, consumers may irrationally overvalue the value of a prepayment option in their mortgage.

Borrower overconfidence also might be reflected in their willingness to accept a mortgage with a constant payment obligation, rather than one that provides budgetary flexibility, such as a mortgage product with an option to skip an occasional payment. Behavioral economics researchers claim that people routinely underestimate the likelihood of major negative life events, such as unemployment, illness, or divorce.[62] As a result of this imperfect ability to anticipate future income or expense shocks, a behavioral law and economics scholar might conclude that consumers may tend to underestimate the value of a more flexible payment stream, such as having the option to temporarily reduce or forgo payments in future periods if such a setback or financial shock were to occur and therefore to overvalue the consistency and predictability of the traditional fixed-rate self-amortizing mortgage relative to a more flexible mortgage product.

Studies of those who obtain fixed-rate mortgages (such as prime and FHA mortgages) also find that many borrowers fail to engage in sufficient search in order to try to find a lower interest rate, an observation that could be consistent with the assumption that borrowers are overoptimistic that they are obtaining the lowest price available and undervaluing the potential benefits of further search. A study by Sumit Agarwal, John Driscoll, Xavier Gabaix, and David Laibson found that persistent mistakes in loan applications that increase borrowers' annual percentage rates by an average of 125 basis points.[63] Susan Woodward's study of fixed-rate

[62] See Neil Weinstein, *Unrealistic Optimism about Future Life Events*, 39 J Pers & Soc Psych 806 (1980); Lynn A. Baker and Robert E. Emery, *When Every Relationship Is Above Average: Perceptions and Expectations of Divorce at the Time of Marriage*, 17 Law & Hum Beh 439 (1993).

[63] Sumit Agarwal, et al, *The Age of Reason: Financial Decisions over the Life-Cycle with Implications for Regulation**9–11 (unpublished manuscript, Oct 21, 2008), online at http://ssrn.com/abstract=973790 (visited May 2013).

FHA mortgages found that borrowers make systemic mistakes leading to excessive broker fees of up to $1,500.[64] Moreover, Woodward found that black and Latino borrowers paid higher costs and fees than others.[65]

6. Consumer Confusion and "Shrouded" Fees

One of the important characteristics of the prime mortgage market is that although many consumers would benefit from a mortgage with a prepayment penalty (and thus lower costs and a lower interest rate, as well as saving the costs of refinancing), prime lenders rarely offer consumers the option of a lower interest rate in exchange for accepting a prepayment penalty in their mortgage. In addition, the premium that the borrower pays in order to have this right is simply embedded in the costs and interest rate of the contract, and typically not broken out separately (although the value of a prepayment penalty is broken out in the term sheets provided to mortgage brokers, for example, which provide a line item for the interest rate premium to be charged in states that limit or prohibit prepayment penalties[66]). Thus, behavioral law and economics might point to the refusal of lenders to provide a separate price to the borrower for the option of a loan that contains a prepayment penalty as a sort of hidden, "shrouded," or non-salient fee.[67] In addition, at the time of the initial loan, the borrower may not be aware of the significant out-of-pocket costs associated with later refinancing or may ignore or irrationally discount those costs because they are deferred until later. Consumers may also be overoptimistic

[64]Susan E. Woodward, *A Study of Closing Costs for FHA Mortgages* *14 (US DeptHous& Urban Dev, 2008), online athttp://www.urban.org/UploadedPDF/411682_fha_mortgages.pdf; see also John Y. Campbell, *Household Finance*, 61 J Fin 1553, 1589 (2006). Note that these were FHA mortgages, however, so it is questionable whether the study says anything about subprime mortgages specifically as opposed to the general mortgage market.
[65]Woodward, *A Study of Closing Costs* at 45 (cited in note 64).
[66] Zywicki and Adamson, 80 U Colo L Rev at 19 (cited in note 24).
[67] See Xavier Gabaix and David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets,* 121 Q J Econ 505 (2006). As discussed below, this hypothesis would be subject to empirical testing.

about the likelihood that they will remain in the current home for a long time and thus might overestimate the value of thirty years of interest rate insurance when, in fact, they likely to live there for a far shorter time.

Behavioral law and economics analysts also can provide a ready explanation for why many borrowers initially are pushed into fixed-rate mortgages, and subsequently pushed to refinance even when it does not make economic sense to do so: banks, mortgage brokers, and the entire mortgage finance industry earn fees only when borrowers refinance their mortgages. In addition, each new wave of refinancing provides additional grist for the mortgage securitization mill as well as Fannie Mae and Freddie Mac. Thus, while an adjustable-rate mortgage may be the wise choice for many borrowers in order to avoid the temptation or need to refinance later if interest rates fall, those in the mortgage finance industry may have incentives to pressure borrowers into a fixed-rate mortgage and to refinancing subsequently in order to generate origination and other fees.

B. Policy Implications of the Behavioral Law and Economics Analysis of Fixed-Rate Mortgages

Behavioral law and economics concepts thus suggest that the continued primacy of the cookie-cutter thirty-year fixed-rate mortgage may be the result of exploitation of consumer biases rather than the result of a well-functioning market process. If this is so, then behavioral law and economics also suggests a number of regulatory reforms that might be appropriate to "de-bias" the mortgage shopping experience and to "nudge" consumers toward more optimal decision making.

First, given that the average life of a mortgage is only five years, behavioral law and economics suggests the default product of a thirty-year fixed-rate mortgage is too long and induces consumers to buy many years of interest-rate insurance that few of them will ever use. According to one reported quote, consumers could save 150 basis points (from 4.75 percent to 3.25 percent) by taking a mortgage with a fixed rate for five years followed by an adjustable rate after that.[68] To illustrate, on a $250,000 mortgage, a homeowner could save $315 per month by taking the loan with the shorter fixed-rate period ($3,780 per year or $113,400 over the life of the mortgage if interest rates stayed constant). Consumers thus pay a substantial price for the security of stable payments twenty-nine or thirty years hence on their mortgage. Given that the average length of time to hold a mortgage is five years, behavioral law and economics analysis suggests that the traditional default product standardized on the thirty-year fixed-rate self-amortizing mortgage should be replaced by a presumption of a variable-rate mortgage. If consumers prefer a fixed-rate mortgage, then lenders should be required to explicitly disclose the difference in price between an adjustable- and a fixed-rate mortgage so that there is greater transparency about the premium that consumers pay for a fixed-rate mortgage.

Indeed, behavioral law and economics suggests that it might be appropriate to go further and to require warnings to borrowers who seek thirty-year fixed-rate mortgages that even though they are implicitly paying for thirty years of insurance against interest rate fluctuations, they are highly unlikely to retain the mortgage for that duration of time and that they will be likely to retain the mortgage for only approximately five years. Thus, it may be appropriate to force lenders to provide a more realistic disclosure as to the real costs and benefits of a fixed-rate mortgage and to make it clear to many borrowers that purchasing thirty-years of interest rate insurance with an option to prepay is a poor contract for many. To the extent that lenders can

[68] Lea and Sanders, *Do We Need the 30-Year Fixed-Rate Mortgage?* at 5 (cited in note 1).

predict the propensity of borrowers to move in shorter periods than average, behavioral law and economics suggests that lenders might be required to warn borrowers of that fact as well.

Second, behavioral law and economics suggests that consumers should be made more aware of the high cost they pay for the right to prepay, the substantial cost that they will incur in the future if they refinance, and the risk that they might be unable to do so if house prices fall or they lack sufficient liquidity to pay closing costs. Because consumers so often make mistakes with respect to exercising their prepayment option, it may be appropriate to reverse the traditional presumption in favor of an unlimited right to prepay and create a new "libertarian paternalism" default rule that the borrower has no right to prepay, thereby forcing consumers to expressly purchase a right to prepay.[69] At the least, behavioral law and economics suggests that lenders should be required to offer consumers two different mortgage products—one without a prepayment penalty (and accordingly higher interest rate) and one with a prepayment penalty (and lower interest rate). Doing so would also increase transparency by making the price of the prepayment option explicit. Moreover, it might be argued that the lender might actually have greater information about the likelihood of a particular borrower's propensity to refinance wisely (based on income, assets, and financial sophistication), lenders should be required to help borrowers select the optimal product for their individual needs, which will often be a mortgage with a prepayment penalty, especially in the early years of the mortgage. As noted, prepayment penalties are common in commercial real estate loans and in residential mortgages in virtually every other country, casting doubt about the likelihood that the peculiar standardized term in the U.S. prime market is the optimal term and that all others are suboptimal.

Third, because of the tendency of households to underestimate the likelihood of adverse events such as unemployment, illness, or divorce, behavioral law and economics suggests that

[69] See Thaler and Sunstein, *Nudge* at 4–6 (cited in note 53) (describing "libertarian paternalism").

consumers should be discouraged from loans with fixed payment obligations, such as fixed-rate mortgages. Instead, consumers should be nudged toward products that permit a more flexible payment stream. This would provide them with flexibility against unexpected income or expense shocks that could subsequently precipitate an inability to meet their fixed monthly payment obligations.

In short, behavioral law and economics analysis suggests that the current mortgage system standardized on the thirty-year fixed-rate mortgages is suboptimal for many consumers and the economy and is explained by the opportunity for lenders to exploit consumer biases. Only a radical reform of consumer lending markets designed to de-bias the mortgage markets that support the traditional thirty-year self-amortizing fixed-rate mortgage can prevent future events such as the financial crisis of the past several years.

IV. Behavioral Law and Economics and Just-So Stories

It is now time for a confession: the discussion in Part III—which provided a behavioral law and economics analysis of fixed-rate mortgages and the policy implications that that follow from them—is a spoof. It should be stressed that the basic underlying analysis with fixed-rate mortgages identified in Part II is entirely true and accurately presented, including the outsized contribution of fixed-rate mortgages to the worsening of the financial crisis, the systemic effects of refinancing waves, and the negative effect of fixed-rate mortgages on the effectiveness of government policy levers. The crucial contribution of equity-stripping cash-out refinancing (enabled by the right to prepay mortgages) to the foreclosure crisis is also important. Moreover, the outlier position of the United States in the global economy in the structure of its standard mortgage should give pause that the United States alone has developed the ideal mortgage

product for consumers, especially when the economic support for it is so dubious. Indeed, the persistent dominance of the thirty-year fixed-rate mortgage rests on the unique position of the federal government in promoting it through the subsidy provided by GSEs such as Fannie Mae and Freddie Mac. Absent the government's intervention it seems highly unlikely that such an unusual and problematic product would have emerged as the standard in the United States.

A very good case can be made that the standard American mortgage is very bad for consumers and the American economy. But despite the serious discussion that needs to be had about the optimality of retaining the thirty-year fixed-rate mortgage, the purpose of this article is not to comprehensively analyze the wisdom and efficiency of the American mortgage system. Instead, the purpose of writing Part III of this article as a spoof is to illustrate a key point about the current state of knowledge of behavioral law and economics: Although it is possible that some day behavioral law and economics might become sufficiently coherent to provide meaningful policy insights, to date it simply is not precise enough in understanding how its insights apply to particular contexts on which to base policy, especially in a market as complex as the mortgage financing market and where consumer preferences are so heterogeneous. To the extent that behavioral law and economics can provide explanations for diametrically opposite policy positions—for or against fixed-rate mortgages or prepayment penalties—this observation raises doubts about the scientific validity of the method itself. Moreover, to the extent that behavioral law and economics provides ambiguous predictions as an a priori matter, this places special importance on the validity of empirical testing. Certainly, the state of the knowledge about the application of behavioral economics to concrete policy prescriptions—the agenda of behavioral law and economics—such as remaking the mortgage market or consumer protection policy is too undeveloped today to provide a basis for confidence that interventions are well-

founded or likely to be efficacious. Behavioral law and economics today simply has not reached a state of sufficient precision to be ready for application to human subjects and the economy. Perhaps in the future sufficient precision will be attainable, although there is no reason to believe that future will research will necessarily increase, instead of eroding, support for behavioral prescriptions.I contend that the approach used in this paper—the positing of a purported market failure based on an incomplete assessment of the evidence and the post hoc attachment of certain cognitive biases to explain them—is a fair representation of a standard behavioral law and economics analysis.[70] As noted at the outset, for example, at least two major articles have been written purporting to dissect subprime mortgages from a behavioral economics perspective[71] and to fashion a new regime for mortgage regulation on the basis of behavioral economics[72]. The methodologies employed and the sweeping conclusions urged in these articles provide a cautionary tale in the dangers of using behavioral law and economics to advocate sweeping policy changes.

Much of behavioral law and economics scholarship (in contrast with the underlying discipline of behavioral economics) to date can be fairly characterized as little more than just-so stories—results-driven analysis of selective examples assumed to be manifestations of consumer irrationality with post hoc rationalizations provided for what might not even be market failures. For example, although behavioral law and economics scholars have criticized adjustable-rate mortgages, prepayment penalties, and balloon payments in subprime mortgages they have ignored that such features are common in mortgages in other countries—countries less prone to mortgage market disruptions than the United States. This failure to acknowledge the anomalous

[70] Indeed, numerous economists and law and economics scholars read this article in draft form, including a group at a conference for which this paper was initially prepared and a law faculty colloquium, and none of reported that they never suspected while reading it that the "behavioral law and economics" analysis in Part III was tongue-in-cheek.
[71] Bar-Gill, 94 Cornell L Rev at 1073 (cited in note 5).
[72] Barr, Mullainathan, and Shafir, *Behaviorally Informed Home Mortgage Credit Regulation* *2 (cited in note 58).

nature of the American mortgage is especially problematic in that behavioral economics generally purports to rest on universal psychological attributes (cognitive biases such as overoptimism biases and the like) that should be more or less universal. Nor is the behavioral law and economics analysis of mortgages unique: similar analysis could be provided of credit cards and a myriad of other supposed consumer protection problems and purported market failures.[73]

This Part will discuss some of the extant problems with using law and behavioral economics in its current state of knowledge as a guide to policy in the mortgage regulation area. Note that for current purposes, I assume *arguendo* that the underlying behavioral economics concepts on which BLE is based are sound and robust—that, for example, the loss aversion bias or status quo bias are well-supported theories. To the extent that the underlying findings of behavioral economics are weak or context-dependent, however, this would weaken the value of behavioral law and economics still more.

Instead the focus here will be on the peculiar "just-so stories" methodology of behavioral law and economics: a methodology that begins not by merely documenting some particular consumer behavior, but by asserting that the observed behavior is suboptimal and results in consumer welfare losses. The methodology then reverse-engineers an ad hoc collection of biases that supposedly explain the persistence of the suboptimal decisions and generalizes them to all consumers, leading to recommendations for government interventions to address the purported market failures.[74] Thus, rather than following the standard methodology of starting with a hypothesis and then testing it against the data, the standard approach of behavioral law and

[73] See, for example, Tom Durkin, Gregory Elliehausen, and Todd J. Zywicki, *Credit Cards and Behavioral Law and Economics*, S Ct Econ Rev (forthcoming 2014).
[74] See Gregory Mitchell, *Tendencies versus Boundaries: Levels of Generality in Behavioral Law and Economics*, 56 Vand L Rev 1781 (2003) (noting tendency in behavioral law and economics to generalize from findings from subgroups of people or context-dependent findings).

economics is to start with the data and then to reverse-engineer ad hoc behavioral explanations to provide explanations. The assumption that the observed data must be welfare-reducing to consumers is implicitly embedded in the methodology itself, rather than being the conclusion of the inquiry. The fact that behavioral law and economists invariably find their behavioral "hypotheses" confirmed by the "data" strongly suggests that the hypotheses implicitly are being retrofitted to the data rather than being seriously tested. Indeed, the entire behavioral law and economics research program itself might be a glaring example of the "confirmation bias" that is a staple of behavioral law and economics literature.[75]

I will identify three basic categories of problems with the current methodological approach of behavioral law and economics as applied to mortgage financing: (1) the problem of just-so stories and the resultant lack of testable implications, (2) the problem of unintended consequences that flow from policies based on the mistaken attribution of irrationality to consumer decisionmaking, and (3) the problem of evidence that does not support the behavioral hypotheses and instead is better explained by standard economics models

A. Just-So Stories: The Lack of Testable Implications

Perhaps the most glaring deficiency in behavioral law and economics is its peculiar methodological approach: by starting with selective data or often even anecdotes, behavioral law and economics then retrofits explanations based on behavioral biases that it claims justifies the observations. Unlike behavioral economics, which aspires to generate testable hypotheses—

[75] See Cass R. Sunstein, *The Storrs Lectures: Behavioral Economics and Paternalism*, 122 Yale L J 1826, 1849 (2013) (describing "confirmation bias" as when "people give special weight to information that confirms their antecedent beliefs").

although these studies are often poorly designed, conclusory, and context-dependent[76]—behavioral *law and economics*, by contrast, attempts to take the findings of behavioral economics and apply them to real world policy proposals. But even more than that, behavioral law and economics purports to advance rigorous welfare analysis of discrete market and other practices in the real world, such as concluding that the features that distinguished subprime mortgages from prime mortgages reflected a conscious effort by subprime lenders to exploit behavioral biases by consumers.

In particular, behavioral law and economics currently lacks any rigorous methodology for addressing two fundamental questions: first, why asserted biases would be thought to apply in some contexts and not others and, second, the conjunction problem of determining which biases will prevail if various biases are purported to have effects that push in different directions when applied.

The methodological problem of telling just-so stories to fit observations, rather than testable hypotheses, presents a unique problem for behavioral law and economics because the field rejects a fundamental underpinning of traditional economics, which is the premise of revealed demand.[77] Revealed demand holds that the only way to determine an individual's actual preferences is to observe the choices that the individual actually makes. For example, someone might say that he prefers chocolate ice cream to vanilla, but until she actually has to choose between them the preference is essentially hypothetical. And because preferences are subjective, it is impossible even to generalize from one person to another or to otherwise assume that preferences are uniform.

[76] See discussion in Plott and Zeiler, 95 Am Econ Rev 530.(cited in note 52). Context and proper interpretation are especially important in behavioral economics because most of the biases that have been cataloged have been identified in laboratory experiments, not from empirical field studies.
[77] See Wright, 121 Yale L J at 2222-24 (cited in note 3).

Behavioral law and economics, however, rejects the premise of revealed preferences, arguing that just because consumers' choose one product rather than another does not necessarily imply that he or she actually prefers the selected option. Thus, whereas a traditional economist can infer consumer's preferences subject to constraint from observing individual behavior, behavioral law and economics attempts to determine what an individual's "true" preferences are, independent of what he actually chooses. Consider the use of credit to fund consumption, such as a vacation. A traditional economist would look at that question and observe that the consumer has decided to fund consumption today at the expense of consumption tomorrow (when he has to repay the debt). But a behavioral law and economics follower might respond that because of various biases and impulses the consumer's "true" preferences would have been to save for the future rather than to borrow against the future for a vacation today.[78] When your "future" self emerges then you will regret having gone on vacation today. Such rationales are often used to justify "nudges" such as increasing retirement savings, on the premise that higher savings is more consistent with one's "true" preferences.[79] As a result, the bureaucrat is not acting

[78] Note that if the higher consumption today is actually in the nature of a household investment, such as the purchase of a consumer durable or paying down debt (such as student loans), the assumption that people oversave or undersave becomes even more difficult.

[79] See Thaler and Sunstein, *Nudge* at 106–09 (cited in note 53). Naturally, behavioral economists have identified a variety of purported biases related to memory and anticipation of future events that further confound the difficulty of determining the optimal consumption stream from the perspective of your "future" self. For example, people supposedly suffer from biases that may cause their "future" selves to misremember the experiences of their "current" self, and to thereby discount the actual level utility that their current self received at the time. If so, then this would lead one's future self to irrationally overvalue the value of deferred consumption from the perspective of their earlier "selves." Thus, in determining the optimal level of consumption today versus the future, one's future self will not be a reliable guide because one's future self is biased with respect to its past self. But at the same time, individuals may have a bias ("affective forecasting") that causes them to overestimate the pleasure that they will receive from future life events and stages (such as winning the lottery or retiring from work). As a result, their current selves are unreliable predictors of their future selves as well.

paternalistically by telling you what you "should" do according to the regulator's preferences, but instead the bureaucrat is simply helping you do what you yourself wish you had done.[80]

But this response—that central planners should not seek to impose their own preferences but to effectuate the individual's "true" preferences—simply restates and does not eliminate the problem. Consider the example of retirement savings. Say that it is possible to assume with a sufficient degree of certainty that the average person, because of some purported bias, may save less for the future than they later wish they had.[81] But behavioral economists also note that people on average are also overly optimistic about adverse life events, such as the likelihood that they will get divorced.[82] Although some 50 percent of marriages end in divorce, virtually all newlyweds believe that they are less likely than average to be divorced. For a primary wage earner, divorce effectively imposes the equivalent of a 50 percent tax rate on accumulated wealth and savings. But prior to divorce the same person enjoys 100 percent of his consumption, including leisure. Had the prospective divorced person held a more accurate estimate of the probability that he later might be divorced, he rationally would have consumed more (including leisure) and saved less. In other words, as one divorced friend remarked, "Had I know I would end up divorced, I would've smoked better cigars, drunk better scotch, and spent more time playing with the kids, instead of working and saving so much while I was married."

So which bias would predominate in this example—a bias toward undersaving (because of myopia and overoptimism about the future) or a bias toward oversaving (because of

[80] Of course, one also is left to wonder whether the regulator himself would subsequently wish that he had sought employment in the private sector, where he might have received a higher wage—and thus had more money saved when he retires.

[81] Note that even this statement of the assumption oversimplifies the social engineer's challenge: the observed undersaving could be the result of two different proximate mechanisms: the individual might underestimate their need for savings or he might calculate accurately but lack self-control to implement the optimal strategy. Although it is possible that both types of problems—cognitive and self-control—might be amenable to remedy by the same means, that would likely be little more than coincidence if it is so.

[82] See Thaler and Sunstein, *Nudge* at 32 (cited in note 53) (noting that although 50 percent of marriages end in divorce, most of those who marry believe that their particular marriage will not terminate in divorce).

overoptimism about the likely success of one's marriage)? Which "self" reflects one's true self—the retired one with the intact family who wishes he had saved more or the divorced self who wishes he had saved less? More precisely, it appears that as both an ex ante and ex post matter, some individuals will wish they had saved more and others will wish that they had saved less, but it is difficult to see how any regulator can make coherent generalizations about these categories of individuals.

But that only touches the tip of the iceberg of the challenges confronting the well-intentioned central planner.[83] Behavioral economists report that, in addition to underestimating their likelihood of divorce, individuals are also overoptimistic about their likelihood that they will avoid auto accidents, disease, and other adverse life events that cut their lives short prematurely, in which case they and thus not have the opportunity to enjoy their accumulated savings.[84] Again, which "self" is your "true" self—the one that survives to eighty and wishes he had worked and saved more or the one who dies in a car accident at fifty (a risk that he underestimated) and wishes he had consumed more and saved less when he could enjoy it? More important, increased "saving" for the future usually isn't free—it requires either decreased consumption today at the same income level or increased income today in order to maintain the same current consumption level, the latter which can only be obtained by increased work today (forgone leisure, which might include activities such as exercising, which might result in a longer expected lifespan and more time to enjoy one's savings).[85] Yet it a recurrent staple of dime-store

[83] Of course, this is a contestable assumption embedded in behavioral law and economics. It assumes that the central planner himself actually can disentangle his own preferences (which he invariably tends to think are more rational than others') from the actual preferences of those he regulates. Moreover, it also assumes that the regulator is immune to the cognitive or other biases that others hold and that he does not suffer from other biases or self-interested. These premises are simply assumed as part of the model, not demonstrated to be true.

[84] See Sunstein, 122 Yale L J 1826, at 1149 (cited in note 75) (noting that individuals generally underestimate their likelihood of getting into an automobile accident or adverse health outcomes).

[85] Thus Thaler and Sunstein's effort to salvage their intuition is inadequate: they simply assert that "the costs of saving too little are greater than the costs of saving too much." Thaler and Sunstein, *Nudge* at 106 (cited in note 53).

novels, self-help books, and country and western music is the regret of the successful executive that he wished that he had worked less and worried less about money and spent more time with his family and friends.[86]

How could a well-intentioned social engineer decide whether it will be optimal to nudge people to save more (and work more or consume less today versus the future) or to save less (because they are unrealistically overoptimistic about their likelihood of living a long life or remaining married)? Should the social planner create different default rules for those overoptimistic smokers who are unlikely to live to enjoy the fruits of their labor and so should consume more and save less today? Perhaps the central planner should propose a different default rule for the 401k account of a philanderer who is more likely to underestimate his likelihood of ending up in divorce court? In which cases is the central planner concerned about the impact of overoptimism on suboptimal behavior—likelihood of divorce (oversaving) or future income to support a long retirement (undersaving)? If the social objective is to simply nudge people in the directions in which they supposedly actually want to go, and not to substitute the central planner's paternalistic preferences for consumers, why wouldn't all of these factors be relevant?

The problem of determining consumers "true" preferences simply cannot be avoided if regulators seek to nudge consumer behavior in one direction or the other.[87] It is a truism that few people ex post have saved exactly the right amount—virtually everyone saves "too much" or "too little" relative to their future selves, especially in light of the fact that greater savings today

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But they do not acknowledge that in most cases saving "more" means reducing consumption or leisure today in order to increase consumption in the future (if you live that long).

[86] See, for example, James Timothy Nichols and Craig Michael Wiseman, *Live Like You Are Dying* (as performed by Tim McGraw). See http://www.azlyrics.com/lyrics/timmcgraw/livelikeyouweredyin.html.

[87] This whole discussion ignores the obvious irony that the pension plans of the same government officials who are tasked with designing policies to ensure that private citizens save the "right" amount are woefully underfunded to the tune of billions or trillions of dollars and that Social Security will soon run into a negative financial position.

has a cost of reduced consumption or reduced leisure. Some worked (and saved) too much and others worked too little. But this observation that people make mistakes has little relevance for behavioral law and economics, which purports to claim that people make *systematic* mistakes biased toward undersaving. Yet Behavioral law and economics provides no sounder methodology for determining whether people undersave or oversave than it does for determining whether a person who chose chocolate ice cream "actually" prefers vanilla.

The reality of economic trade-offs is present for traditional economists as well. For example, economists recognize that "income" and "substitution" effects can provide offsetting predictions of individual behavior. As a result, it is indeterminate as an a priori matter whether worker facing a higher tax will work less (substitute greater leisure because the marginal return from work versus leisure has decreased) or will work more (in order to earn enough income to maintain a certain standard of living). Similarly, it is indeterminate as to whether a worker who receives a raise (a higher hourly wage) will work more hours (because of the substitution effect that leisure has become more expensive) or fewer hours (because of the income effect that he can now earn a desired amount of money with fewer hours of work). But standard economics also has a methodology for resolving these a priori ambiguities: an economist can rely on empirical evidence to resolve the theoretical ambiguity to determine whether workers subsequently decrease or increase their work effort. Revealed behavior demonstrates whether in any given context the income or substitution effect is likely to predominate.

These important analytical problems rear their heads when it comes to applying behavioral law and economics to the analysis of subprime mortgage regulation. Behavioral economics purports to reach generally applicable conclusions about consumers *in general*—such as a tendency toward myopia, overconfidence, or loss aversion. Yet behavioral law and

economics also asserts that for some reason *only* subprime lenders recognized the long-latent opportunity to exploit consumers by imposing prepayment penalties and adjustable rates in their mortgages and that only subprime borrowers suffer the psychological biases identified by behavioral law and economics scholars.[88] But the widespread assumption that subprime borrowers are dumber or less capable of understanding their mortgages than prime borrowers may not be accurate: According to a study by the Federal Trade Commission, borrowers who had recently originated a prime mortgage were able to understand, on average, 62 percent of questions related to a mortgage disclosure document correctly; subprime borrowers in the study were able to answer 59.6 percent of the questions correctly.[89] The difference between the two groups was not in their innate capacity to understand the mortgages—and thus their inherent likelihood of being abused—but rather the complexity of the terms between them. Thus, there is no reason to assume that those who took subprime loans are fundamentally dumber or necessarily more prone to biases than those who took prime loans.[90]

But if biases are purportedly universal, why were some supposedly abusive terms were found in both prime and subprime mortgages, but others were not. For example, over the run of the housing boom, the percentage of *prime* mortgages with adjustable rates increased but there is no indication that the percentage of prime mortgages with prepayment penalties rose. If lenders were motivated by the opportunity to exploit consumers' behavioral biases, why would they exploit only the purportedly irrational preferences for adjustable-rate mortgages but not

[88] This is important to recognize—the theory of behavioral law and economics is that the biases identified, such as overoptimism bias, are essentially universal; thus they are not caused by environmental factors such as education and the like.

[89] James M. Lacko and Janis K. Pappalardo, ,*Improving Consumer Mortgage Disclosures: An Empirical Assessment of Current and Prototype Disclosure Forms**70, table 6.1 (Federal Trade Commission Staff Report, June2007), online at http://www.ftc.gov/os/2007/06/P025505MortgageDisclosureReport.pdf (visited May 2013).

[90] Indeed, given the extremely high default rates on subprime mortgages it seems evident in retrospect that lenders *underpriced* the risk of the loans they made, which simultaneously implies that subprime borrowers received a *better* deal (and a lower interest rate) than they should have based on a more accurate measurement of the riskiness of those loans.

prepayment penalties? And, as discussed below in greater detail, the proliferation of unbundled closing costs and fees is not unique to subprime mortgages but have long been a feature of prime mortgages. In short, the identification of certain features and the attribution of ex post ad hoc analysis is not really a testable hypothesis but instead a set of just-so stories that explain randomly selected observations.[91]

By contrast, traditional economic models at least provide testable hypotheses—and actually provide much more persuasive explanations for observed consumer behavior in mortgage markets at least. For example, adjustable-rate mortgages became more common during the run of the housing boom in both prime and subprime markets.[92] The reason has nothing to do with the idea that adjustable-rate mortgages are simply a vehicle for "postponing" costs or any other behavioral bias—after all, interest rates at any given time are just as likely to fall as to rise in the future. Instead this substitution reflects the decision of the Federal Reserve to artificially reduce short-term interest rates from 2001 to 2004, thereby essentially increasing the relative cost of the premium borrowers were required to pay in order to purchase interest-rate insurance.[93] In response, consumers predictably increased their usage of ARMs. As a result of these changes in relative interest rates, the relative price of adjustable-rate mortgages fell relative to fixed-rate mortgages and consumers responded by substituting from fixed- to adjustable-rate mortgages. In fact, this pattern of consumers increasing their use of ARMs when they fall in price relative to FRMs predates the financial crisis, dating until at least the 1980s in the United

[91] The problem of a lack of testable hypotheses, and a failure of empirical tests to support the hypothesis, is a flaw in behavioral law and economics research on credit cards as well. See Durkin, Elliehausen, and Zywicki, Sup Ct Econ Rev (forthcoming) (cited in note 73).
[92] See Todd J. Zywicki and Gabriel Okloski, *The Housing Market Crash* (Mercatus Center Working Paper 09-35, Sept 2009), online at http://masonlec.org/site/rte_uploads/files/Zywicki_Housing_ Market_Crash.pdf (visited May 2013).
[93] Id.

States.[94] In short, mortgage customers are distributed along an array of preferences from those with a long time horizon and low risk tolerance (and thus who have a strong preference for fixed-rate mortgages) and those with a shorter time horizon and higher risk tolerance (who prefer an adjustable-rate mortgage). At any given time, therefore, there are marginal consumers deciding between fixed- and adjustable-rate mortgages, based on the relative prices of the two products. As a result, as the price difference between fixed- and adjustable-rate mortgages grows or shrinks, the location of the marginal consumer will change, resulting in different demand patterns for fixed- and adjustable-rate mortgages, consistent with the predictions of standard economics.

As housing prices fell in 2007 (in part because of increased interest rates), consumers responded rationally yet again. As their houses became worth less than what they owed on their mortgages, consumers made a rational decision to default on their mortgage payments and permit foreclosure.[95] Again, the decision to walk away from an underwater mortgage is perfectly consistent with rational economic behavior. Indeed, economists have long understood that the decision whether to default and allow foreclosure can be modeled as a financial option and have found that the decision of consumers to exercise this option is consistent with rational economic behavior.[96] These two factors—first, substitution between fixed-and adjustable-rate mortgages based on relative prices and second, the decision to default based on the financial benefit from doing so—provide a perfectly consistent, and much more accurate, explanation for consumer

[94] Id. Foote, et al,note that "payment-option ARM" mortgages were invented in 1980 "and approved for widespread use by the Federal Home Loan Bank Board and the Office of the Comptroller of the Currency in 1981." Foote, et al, *Just the Facts* at 8 (cited in note 48). They also note that in 1990, 30–35 percent of Fannie Mae's loan portfolio were low-document and no-document loans. Foote et al, *Just the Facts* at 9 (cited in note 48).
[95] Zywicki and Okloski, *The Housing Market Crash* (cited in note 92).
[96] Zywicki and Adamson, 80 U Colo L Rev at 26–27 (cited in note 24) (describing the option theory of foreclosure).

choices about mortgage selection and default than behavioral law and economics models, which are based on ad hoc and often unprovable assertions.

In a related vein, consider the analysis of prepayment penalties in mortgages. Conventional economics provides numerous analytical tools for understanding the efficiency purposes of prepayment penalties and why they would be found in subprime mortgages but not prime mortgages: the distinct nature of prepayment risk in the two markets.[97] As a result, the premium a borrower must pay for a prepayment (and refinance) right in the subprime market is typically larger than in the prime market, thus subprime borrowers would be less likely to choose to buy it. Loans with prepayment penalties also typically have lower up-front costs, which will appeal to those with less liquidity at the time of home purchase. The traditional economic model also provides a logical explanation why prepayment is limited in countries where political distortion of the mortgage market is less invasive, whereas the outsized role of the GSEs in the United States has subsidized the idiosyncratic American mortgage relative to the product that would likely prevail in a less distorted market. This all provides clearly testable and falsifiable hypotheses: if prepayment penalties serve a rational economic purpose then loans with prepayment penalties should have lower interest rates and costs than those that do not. And, in fact, that is precisely what the empirical evidence shows.

In addition, if prepayment penalties were actually predatory, then the presence of prepayment penalties (when controlling for other factors) should be reflected in higher foreclosure rates for mortgages that contain prepayment penalties. But, as noted, available evidence indicates that that mortgages with prepayment penalties do not have higher foreclosure rates than others. Presumably the evidence also shows that being willing to accept a prepayment

[97] Id at 16.

penalty reduces the borrower's interest rate and thus his payment obligation.[98] Finally, it should be remembered that prepayment penalties are standard in commercial real estate contracts, which makes it difficult to believe that prepayment penalties are the result of abuse and serve no legitimate economic function.

The belief that prepayment penalties are abusive and harmful to consumers may be based in part on a misunderstanding of their function in the mortgage contract. Professor Bar-Gill, for example, acknowledges that mortgages with prepayment penalties have "lower interest rates and thus lower monthly payments."[99] But he seems to believe for some reason that this price reduction is only a short-term phenomenon, claiming that prepayment penalties "thus produce the temporal-shift characteristic of deferred-cost contracts: pay less now, pay more later."[100] But a prepayment penalty doesn't simply shift or defer costs by reducing the payment obligation temporarily during the prepayment penalty period; the presence of the prepayment penalty reduces the overall total risk of the loan (by reducing the prepayment risk), and therefore reduces the total cost of the loan.[101] The prepayment penalty reduces the lender's *total* risk, and hence cost of the loan, and therefore the price and interest rate for the *entire* loan. The effect of the prepayment penalty thus is not to simply defer costs, but to actually reduce the total cost of the loan and thus the full price of the loan to the borrower.

B. The Problem of Unintended Consequences

Behavioral law and economics suffers from a second problem that is closely related to the first. Because the behavioral law and economics research agenda has focused on providing ex post ad

[98]Mayer, Piskorski, and Tchistyi, *The Inefficiency of Refinancing* at 5 (cited in note 33).
[99]See note 32 and accompanying text.
[100]Bar-Gill, 94 Cornell L Rev at 1102 (cited in note 5).
[101] See notes 38–40 and accompanying text.

hoc rationalizations for observed behavior, rather than providing ex ante determinate testable hypotheses, policy prescriptions based on behavioral law and economics will be unusually prone to unintended consequences when implemented. Although policy prescriptions based on any economic model are prone to unintended consequences if the underlying model is flawed or the applications are in error, policies based on behavioral law and economics may be especially problematic because of the opportunities that they create for moral hazard and adverse selection. Thus, whereas policies based on consumer rationality may be somewhat ineffective if consumer behavior is imperfectly rational, it is unlikely that such policies will have major adverse unintended consequences—that is, they may do little to make matters better for consumers but it is highly unlikely that their implementation will make matters worse. Erroneous application of behavioral law and economics, however, actually run a risk of making matters worse because paternalistic rules premised on consumer irrationality may actually provide an opportunity for exploitation by rational consumers.[102]

1. Interventions That Create Their Own Biases

One problem with implementing regulations that use behavioral law and economics is that BLE-inspired interventions may actually create their own biases. Consider one recent example. As part of the Credit Card Accountability, Responsibility and Disclosure (CARD) Act of 2009, credit card lenders are now required to include on their monthly credit card statements a "minimum payment warning" that must inform consumers of how long it will take for them to pay off their outstanding balance if they make only the minimum required monthly payment. Although there is no indication that supporters of the legislation initially relied on behavioral law

[102] One related effect, which has been discussed elsewhere and thus is not discussed here, is that interventions premised on the assumptions that consumers are irrational may stifle learning by consumers.

and economics to justify it,[103] BLE scholars have embraced it as being consistent with their premises—to address concerns that consumers' myopia and impatience might lead them to make only the minimum payment each month, thereby causing them to defer payments in such a manner as to cause them to pay much in more interest fees than they would otherwise.[104] Forcing card issuers to inform consumers of how long it would take to pay off the existing balance by making only the minimum payment, and the amount of interest they would pay by doing so, is designed to overcome these problems of myopia and to inform consumers of the "full" cost of revolving from month to month, thereby ideally encouraging them to pay off their balances faster than they otherwise would.

Once implemented, however, the impact of the CARD Act has been exactly the *opposite* of what was predicted. According to an initial study of the legislation's effect, *more* consumers started making only the minimum payment each month than did prior to the inclusion of the minimum payment warning on their bills.[105] One possible explanation for this finding is the "anchoring" phenomenon observed by behavioral economists in other contexts, such that the reporting of the minimum payment on the credit card statement causes consumers to "anchor" on that figure in a way they otherwise might not.[106] If so, the effort to correct one purported bias (myopia and short-term bias) may simply have triggered a new irrational bias (anchoring). But

[103] The disclosure requirement was included in the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, prior to the growing influence of behavioral law and economics, but like other areas of consumer protection regulation, behavioral law and economics advocates have attached BLE rationalizations to it. Instead, the original impetus for the mandate was animated by what I have elsewhere deemed "normative disclosure" regulation, which I identify as regulations that compel disclosure of what regulators think consumers *should* care about instead of those terms that consumers *actually* care about. See Todd J. Zywicki, *The Market for Information and Credit Card Regulation*, 28(1) Banking and Fin. Servs. Policy Report 13, 15 (2009). For example, consumer surveys found that only four percent of consumers would actually find it useful to know how long it would take them to pay their outstanding debt by only making the minimum payment if they stopped using their card. Id.

[104] See Oren Bar-Gill and Ryan Bubb, *Credit Card Pricing: The CARD Act and Beyond*, 97 Cornell L Rev 967, 1001–04 (2012); Barr, Mullainathan, and Shafir, *The Case for Behaviorally Informed Regulation* at 47–49 (cited in note 6).

[105] Daniel Navarro-Martinez, et al, *Minimum Required Payment and Supplemental Information Disclosure Effects on Consumer Debt Repayment Decisions*, 48 J Marketing Rsrch S 60–S77 (Special Issue 2011).

[106] Neil Stewart, *The Cost of Anchoring on Credit-Card Minimum Repayments*, 20 Psych Science 39–41 (2009).

explaining the observed behavior by pointing to a new bias (anchoring bias) is just as ad hoc and arbitrary as the prior bias (myopia) that the regulation was supposed to correct.[107] An alternative, and probably more plausible, explanation derives from traditional economics: the observed consumer behavior may simply have been rational if the new minimum payment disclosure is simply providing new information at low cost to credit card consumers that they previously lacked. For example, if consumers preferred to make lower payments but believed that the required minimum payment was higher than it was in fact, then the minimum payment warning would have provided valuable information. If these alternative explanations are more accurate—and behavioral law and economics analysts provide no evidence that they are not—then the provision of the information helps to align consumer behavior more closely with their actual preferences, even though contrary to the behavior that regulators hoped to elicit. Nor is it obvious that behavioral law and economics provides any mechanism for predicting ex ante whether the purported cure to the alleged behavioral bias (assuming it can even be established that there is a bias at work) will create its own new biases.

Alternatively, the increased propensity to make only the minimum payment might have nothing to do with the new minimum payment warning, but simply reflect that the rule became effective during a recession, when struggling consumers might have chosen to reduce their monthly payments independent of the rule. Moreover, there is no evidence how many consumers actually read the new warning or relied on it in choosing how much to pay each month. If that number is small (and there is no real reason to believe that it is large), then the

[107] Notably, the BLE supporters of the requirement provide no evidence that consumers actually were making sub-optimally low minimum payments, or more important, that consumers *themselves* believed that their payment levels were below the levels that their "future selves" wished. As a result, the rule's advocates do not indicate on what basis they believe that consumers should or would want to pay "more" than they currently do or that their decision-making processes are suboptimal such that actually inducing them to increase the size of their monthly payments would improve their welfare. It is just stipulated that consumers "might" be tempted to pay less than they would prefer, but no basis for that assumption is provided.

increase in the number of people making only the minimum payment may be entirely spurious and caused by exogenous effects such as the post-crisis recession, not anything having to do with the new rule.

2. Moral Hazard and Adverse Selection

But the potential problem of unintended consequences is exacerbated to the extent that premising policy on beliefs about behavioral economics creates a potential for moral hazard and adverse selection. Because behavioral economics is premised on the assumption that consumers are irrational, unless carefully designed it may open itself to exploitation by consumers who act rationally. Moreover, even adherents to behavioral economics acknowledge that consumers do learn to correct decision-making errors and that stronger incentives for error correction (such as a larger gain from changing behavior) lead to faster adjustments. But the argument about moral hazard and adverse selection goes beyond merely dampening learning by consumers—it recognizes that to the extent that policy is based on the assumption of irrational consumer behavior the policy could be creating opportunities for exploitation by consumers who actually do act rationally.

Consider state anti-deficiency laws that limit the remedies available to lenders in the event of a default on a residential mortgage. Dodd-Frank provides special procedures and protections before a borrower takes any actions that could result in the forfeiture of an anti-deficiency protection under state law.[108] This proposal might be justified by behavioral law and economics principles if it is believed that consumers do not respond to the incentives to strategically default and are unaware of the existence of an anti-deficiency law and thus unknowingly waive their right without compensation. If consumers do not respond to incentives

[108] 15 USCA § 1639c(g) (West 2012).

to default, then anti-deficiency laws would have only a wealth effect between lenders and defaulting borrowers. But economists find that when the value of exercising the foreclosure option rises (such as when the value of the underlying asset falls in value) or the cost of exercising the option falls (such as by the presence of an anti-deficiency law that reduces the cost to homeowners from default, especially high-income and high-wealth homeowners), homeowners respond by exercising the option more readily.[109] In addition, lenders are aware of the incentives created by anti-deficiency laws in terms of increased risk of strategic default ex post and therefore price the loan accordingly ex ante by passing on the increased risk to other consumers.[110] In other words, consumers *do* rationally respond to the incentives of anti-deficiency laws and this is reflected in a higher default rate ex post and resulting higher risk premiums ex ante (higher down payment, higher interest rates, and so forth). Thus, while this provision of Dodd-Frank could be justified if consumers are irrational in their responses to anti-deficiency laws, if that assumption is incorrect then the end result will be more foreclosures and higher interest rates for all borrowers.

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[109] Steven Laufer, *Equity Extraction and Mortgage Default* *5, Finance and Economics Discussion Series No. 2013-30, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, DC (2013), online at http://www.federalreserve.gov/pubs/feds/2013/201330/201330pap.pdf (visited Sept 22, 2013) (concluding that eliminating nonrecourse laws would reduce foreclosures among homeowners with negative equity by 45 percent); Andra C. Ghent and Marianna Kudlyak, *Recourse and Residential Mortgage Default: Theory and Evidence from US States* *29 (Federal Reserve Bank of Richmond Working Paper No 09-10, July 2009), online at http://www.fhfa.gov/webfiles/15051/website_ghent.pdf; Lawrence D. Jones, *Deficiency Judgments and the Exercise of the Default Option in Home Mortgage Loans*, 36 J L & Econ 115, 135 (1993).

[110] Lenders, of course, are well aware that debtor-friendly default laws raise the risk of lending and thus charge higher interest rates and lend less in states with debtor-friendly default laws. See Karen M. Pence, *Foreclosing on Opportunity: State Laws and Mortgage Credit*, 88 Rev Econ & Stat 177 (2006) (finding that average loan size is smaller in states with defaulter-friendly foreclosure laws); Jones, 36 J L & Econ at 137 (cited in note 109) (higher down payments in states with anti-deficiency laws); Mark Meador, *The Effects of Mortgage Laws on Home Mortgage Rates*, 34 J Econ & Bus 143, 146 (1982) (estimating 13.87 basis point increase in interest rates as a result of anti-deficiency laws); Brent W. Ambrose and Anthony B. Sanders, *Legal Restrictions in Personal Loan Markets*, 30 J Real Estate Fin & Econ 133, 147–48 (2005) (finding higher interest rate spreads in states that prohibit deficiency judgments and require judicial foreclosure procedures); Woodward, *A Study of Closing Costs**50 (cited in note 64) (finding that presence of anti-deficiency laws raises costs of loan). But see Michael H. Schill, *An Economic Analysis of Mortgagor Protection Laws*, 77 Va L Rev 489, 512 (1991) (finding mixed results for impact of anti-deficiency laws on foreclosure rates depending on specification of regression).

Banning prepayment penalties also raises a concern of moral hazard and adverse selection. But if permitting easy refinancing also permits easy equity-stripping then a policy that bars prepayment penalties likely will increase foreclosures. During the housing boom many consumers used the option to prepay to suck equity out of their homes at the peak of the market then when their house fell in value they exercised their "option" to default on the loan.[111] As noted, many consumers stripped out equity when they refinanced their loans then when their home fell in value they exercised the option to default. Regardless of whether those borrowers were actually acting strategically, guaranteeing the right to engage in equity-stripping refinancing preserves opportunities for equity-stripping behavior.

In fact, economists have found that equity stripping at the height of the market was a substantial contributor to the foreclosure crisis. For example, using property-level data in Los Angeles County, Steven Laufer estimated that 30 percent of all foreclosures of houses purchased between 2000 and 2003 that subsequently defaulted were caused by equity extraction by homeowners that produced a negative equity position when housing prices subsequently declined.[112] But for the cash-out refinancing and home equity loans that withdrew equity, these homes would have remained in a positive equity position despite the general decline in house values. Similarly, Mian and Sufi estimate that 35 percent of mortgage defaults between 2006 and 2008 are attributable to equity withdrawals by homeowners between 2002 and 2006.[113]

For current purposes it does not matter whether cash-out refinancing was strategic or not—what's significant is that restricting the ability to refinance would have reduced equity

[111] See generally Zywicki and Adamson, 80 U Colo L Rev1 (cited in note 24).
[112] Laufer, *Equity Extraction and Mortgage Default* (cited in note 109). Laufer estimates that 80 percent of foreclosures by those who purchased homes in 2000–03 and defaulted between 2006 and 2009 are explained by equity extraction. Id *3.
[113] Atif Mian and Amir Sufi, *House Prices, Home Equity-Based Borrowing, and the U.S. Household Leverage Crisis*, 101 American Economic Review 2132 (2011).

stripping and thus ensured that fewer borrowers would have fallen into a negative equity position (and thus had an incentive to default) when their homes subsequently dropped in value. Laufer, for example, estimates that among those who purchased homes between 2000 and 2003 and defaulted in 2009 the rate of equity extraction was 70 percent or higher. The huge percentage of equity withdrawn makes it highly unlikely that these consumers were the victims of "predatory" refinancing schemes, that is, repeated refinancing where the principal amount of the loan increases over time because the borrower is repeatedly rolling closing costs into the loan. Instead, it seems much more plausible that homeowners were withdrawing equity in order to finance consumption; then, when housing prices subsequently fell and they found themselves in a negative equity position, defaulting on the mortgage.

Behavioral law and economics scholars, however, ignore the important information asymmetry of borrowers' relative propensity to strategically default and the potential moral hazard from permitting equity-stripping by banning prepayment penalties. Only the borrower really knows the personal breakpoint at which he decides that it is worth it to default on his mortgage. That decision that will depend on a host of factors, such as his attachment to his home, the size of the negative equity position, the cost of moving, alternative housing options, his personal moral beliefs, and his overall financial state.

Behavioral law and economics scholars largely ignore the reality of rational default and the accompanying possibility of equity-stripping behavior. For example, Barr, Mullainathan, and Shafircomment that "by barring prepayment penalties, one could reduce lock-in to bad mortgages."[114] This is obviously true. But barring prepayment penalties also permits homeowners to engage in equity-stripping refinancing transactions, thereby reducing the size of

[114] Michael S. Barr, Sendhil Mullainathan, and Eldar Shafir, *Behaviorally Informed Financial Services Regulation* 8 (Oct 2008), available at http://www.fdic.gov/about/comein/behaveApril1a.pdf (Visited October 2013).

their equity cushions and increasing their incentive to default if their home later falls in value.[115] It is only by making the assumption that there is no moral hazard problem (an assumption with no support in reality)—that consumers will not refinance opportunistically in order to strip out equity—that Barr, Mullainathan, and Shafir can assume that barring prepayment penalties will benefit consumers.

C. The Problem of Evidence That Doesn't Support the Hypothesis

Another problem with behavioral law and economics is that it bases its policy recommendations on an incomplete understanding of the facts and thus attributes biases and inefficiency where none are actually present. In short, they assume a welfare loss caused by biased decision making and assume a connection, even without supporting empirical evidence. This approach turns standard hypothesis testing on its head: rather than testing whether a certain term or practice is efficient, it is assumed to be inefficient and then a particular bias is ascribed to it.

It is possible to test behavioral models using standard empirical techniques. On such tests, behavioral law and economics models are often rejected by the data. Consider several examples where this flaw emerges in the mortgage regulation context: consumer confusion arising from closing costs on subprime mortgages, usage of "complex" mortgages, and the usage of "teaser" rates in subprime mortgages.

1. Unbundling of Closing Costs on Subprime Mortgages

[115] Not to mention, as noted earlier, that under the logic of behavioral law and economics consumers might benefit from prepayment penalties that prevent them from refinancing, or being pressured into refinancing, when doing so is not economically beneficial. They also ignore the systemic costs of refinancing "waves" as discussed earlier, as refinancing occurs in a disruptive boom and bust cycle.

First consider closing costs on subprime mortgages. Bar-Gill argues that subprime mortgages are loaded with various fees designed to confuse consumers and to take advantage of their limited attention spans:[116]

> Beyond the multiple interest rates, the typical subprime and Alt-A loan boasts a long list of fees. These fees can be divided into two categories: origination fees and postorigination fees. Origination fees are paid at closing—that is, at the consummation of the credit transaction. Before closing a loan contract, the lender obtains information about the risk that it is about to undertake. Specifically, the lender performs credit checks and obtains appraisals. The lender also commissions various inspections, examinations, and certifications, including pest inspection, title examination, flood certification, and tax certification (for information about the borrower's outstanding tax obligations). Lenders charge the borrower separate fees for each of these information-acquisition services. For example, LandSafe, Countrywide's closing-services subsidiary, charges a $36 fee for the credit check, a $26 fee for flood certification, and a $60 fee for the tax certification. In 2006, Countrywide's appraisal fee revenues totaled $137 million, and its credit report fee revenues totaled $74 million.
>
> Separate fees are charged for analyzing the acquired information. These include escrow analysis fees, which cover the cost of determining the appropriate balance for the escrow account and the borrower's monthly escrow payments, and underwriting analysis fees, which cover the costs of analyzing a borrower's creditworthiness. Still more fees are charged for insuring against identified risks, including premiums for credit insurance, title insurance, and private mortgage insurance (PMI).
>
> Also at closing, the lender charges fees for administrative services associated with the loan-origination process, such as preparing documents, notarizing documents, and sending e-mails, faxes, and courier mail. For example, some Countrywide loans included fees of $45 to ship documents overnight and $100 to e-mail documents. And then there are the general fees: for loan origination, loan processing, signing documents, and closing the loan. Some subprime lenders charge up to fifteen different origination fees, and these fees can add up to thousands of dollars or up to 20 percent of the loan amount. These fees are often financed into the loan amount and form the basis for additional interest charges.
>
> In addition to the multiple fees charged at closing, the loan contract specifies a series of future, contingent fees, including late fees, foreclosure fees, prepayment penalties, and dispute-resolution or arbitration fees. Again, these fees can be substantial. Prepayment penalties and foreclosure fees can amount to thousands of dollars. Late fees can amount to 5 percent of the monthly payment.

[116] Bar-Gill, 94 Cornell L Rev at 1104-05 (cited in note 5).

From this discussion, Professor Bar-Gill criticizes the structure of subprime mortgages, suggesting that the multiplication of many confusing fees is an attempt to prey on consumer biases.

The problem with this conclusion is that virtually all of the fees Professor Bar-Gill identifies are also present for prime mortgages as well: such as fees for credit checks, flood certification, tax certification, processing, origination, and overnight delivery. Prime mortgages also include terms regarding late fees, foreclosure fees, and dispute-resolution or arbitration fees, and Professor Bar-Gill provides no evidence that these fees are more numerous or more costly in subprime loans than in prime loans or that they are not justified by cost, risk, or some other economic variable. In fact, Bar-Gill seems to acknowledge in places that these fees are not unique to subprime loans but are characteristic of mortgages generally.[117] Still, the reader is left with the distinct impression that these fees are unique to subprime and Alt-A mortgages or that the unbundling of fees is a distinct attribute of subprime markets. For instance, he writes, "the . . . rational-choice explanation describes the *proliferation of fess in subprime mortgage contracts* as reflecting a desirable shift to risk-based pricing. For example, if the costs of delinquency and foreclosure proceedings are folded into the interest rate, then nondefaulting borrowers will pay for the delinquency and foreclosures of defaulting borrowers. Separate late fees and foreclosure fees eliminate this cross-subsidization. Again, this explanation is plausible for certain fees, but not for others."[118] But prime mortgages also charge late fees and charge borrowers for the costs of foreclosure as well, and for precisely for the reasons he identifies. Thus it is not clear why he introduces the discussion by referring to the proliferation of fees in

[117] See, for example, Bar-Gill, 94 Cornell L Rev at 1104 n 115 (cited in note 5) (noting that the costs he lists are "not only in the subprime and Alt-A markets"); Bar-Gill and Warren, 157 U Pa L Rev at 154–55 (cited in note 3) (criticizing proliferation of fees in mortgage markets without distinguishing between prime and subprime).
[118] Bar-Gill, 94 Cornell L Rev at 1117 (emphasis added).

"subprime" mortgage contracts when these unbundled terms and fees are in fact a feature of all mortgage contracts.

Although the discussion purports to demonstrate the unique flaws in the subprime mortgage market, virtually the entire discussion has absolutely nothing at all to do with explaining differences in the structure or disclosure of closing costs between prime and subprime mortgage markets. Moreover, virtually all of the examples that Professor Bar-Gill gives to support his argument are examples from prime and FHA loans, *not* subprime mortgages, again suggesting that these not distinctive to the subprime market.[119] Moreover, although Professor Bar-Gill's concern about the unbundled and confusing nature of closing costs for mortgages is well grounded, in large part this unbundling (especially of closing costs) is mandated by government regulations, not market outcomes. Thus, this example appears to be irrelevant to support for the behavioral law and economics hypothesis.

More generally, behavioral law and economics appears to have no coherent theory to explain when consumer welfare is enhanced by fees and costs being bundled or unbundled. For example, although Bar-Gill mentions a concern about "shrouded" fees in the context of *unbundled* closing costs in subprime mortgages, he ignores the shrouding of the prepayment option in prime mortgages, which is implicitly purchased by borrowers that acquire a mortgage with a right to prepay.[120] On the other hand, Bar-Gill has developed a whole theory premised on the idea that the "bundling" of various credit card attributes is inefficient and designed to exploit consumers.[121]In short, behavioral law and economics appears to have no coherent theory of

[119] See, for example, Bar-Gill, 94 Cornell L Rev at 1138 (cited in note 5) (citing Woodward, *A Study of Closing Costs* (cited in note 64); Bar-Gill, 94 Cornell L Rev at 1122 n 168 (cited in note 5) (describing costs to consumers from current system for all mortgages).
[120] Bar-Gill discusses shrouded fees but does not discuss the bundling of the price for the right to prepay as an example of a shrouded fee. See Bar-Gill, 94 Cornell L Rev at 1123 (cited in note 5).
[121] Oren Bar-Gill, *Bundling and Consumer Misperception*, 73 U Chi L Rev 33, 48–50 (2006).

when one can predict that bundling or unbundling of fees and services is good or bad for consumers. When fees are unbundled, this is said to be an effort to confuse consumers by drowning them in details and focusing their attention on non-salient terms; when fees are bundled together, however, this is said to be an effort to avoid transparency and to conceal the full cost of the product or service. These ex post ad hoc rationalizations fall short of a testable economic theory.

2. "Complex" Mortgages

A similar problem arises in the claim by behavioral law and economics scholars that the most complex mortgages, such as interest-only, payment-option, and negative-amortization mortgages, were peddled to the least sophisticated consumers in order to exploit psychological biases.[122] Barr, Mullainathan, and Shafir, for example, contend that "a central problem of the mortgage crisis," was that "[b]rokers and lenders offered loans that looked much less expensive than they really were, because of low initial monthly payments and hidden, costly features."[123] The evidence, however, is flatly inconsistent with this assertion. Economists have found that during the financial crisis complex mortgage products (such as negative-amortization loans) were disproportionately used by sophisticated, high-income borrowers with prime credit scores, *not* the low-income, unsophisticated borrowers that Bar-Gill suggests were the target group for these products.[124] And although Amronin, Huang, Sialm, and Zhong found that complex mortgages did indeed have higher default rates than predicted, this was because they attracted

[122] Bar-Gill acknowledges that "option ARMs were rare in the subprime market but quite popular in the Alt-A market." Bar-Gill, 94 Cornell L Rev at 1099 (cited in note 5). He lumps these loans in with his discussion of predatory terms in subprime mortgages, however, and so it is included here.
[123] Barr, Mullainathan, and Shafir, *Behaviorally Informed Financial Services Regulation* at 8 (cited in note 114). See Thaler and Sunstein, *Nudge* at 137 (cited in note 52).
[124] See, for example, Gene Amromin, Jennifer Huang, Clemens Sialm, and Edward Zhong , *Complex Mortgages* *31–32 (AFA Chicago Meetings Working Paper, 2012), online at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1714605 (visited May 2013).

sophisticated borrowers who are more strategic and rational in their default decisions, not because unsophisticated borrowers were unwittingly duped into them. Thus, in this instance in which the behavioral law and economics hypothesis provides a testable hypothesis—that complex mortgages would be pitched to the least-sophisticated borrowers—the data is inconsistent with the behavioral hypothesis. Moreover, the *actual* result in terms of both the loans that were made and the behavior of borrowers is consistent with standard economic theory of consumer behavior (albeit foolishness by lenders).

3. Teaser Rates

Nor is there any evidence that "teaser rates" in subprime mortgages were a major contributor to the foreclosure crisis. Behavioral law and economics theorists have to a large extent made teaser rates a linchpin of their theory, arguing that their purpose was to exploit consumer confusion by inducing borrowers to focus on the interest rate during the low "teaser" portion of the loan, rather than the later market rate.[125]

Bar-Gill and Warren write, for example:

> Specifically, subprime mortgage contracts often require a very small, or even zero, down payment. In addition, the common 2/28 (or 3/27) hybrid mortgages offer low introductory interest rates for the initial two (or three) year period, to be followed by sharp increases in payments. These features of the mortgage product may be responding to consumers' optimism bias. A consumer who overestimates the rate by which her income will increase will prefer a mortgage with a small down payment and a low introductory rate. When the introductory period ends and her income does not increase as expected, this consumer may face foreclosure.[126]

[125] See Bar-Gill, 94 Cornell L Rev at 1098-99 (cited in note 5).
[126] Bar-Gill and Warren, 157 U Pa L Rev at 153 (cited in note 3).

In fact there is scarce evidence that payment shock arising from the expiration of introductory teaser rates was actually a major contributor to the foreclosure crisis.[127] Of those loans with teaser rates that ended in foreclosure, the overwhelming majority entered foreclosure *before* there was an upward reset of the interest rate.[128] Foote and colleagues noted that 84 percent of foreclosed borrowers were making the same payment at the time of their default as they were when their loans were originated and only 12 percent had higher payments, thus "exploding" interest rates could explain *at most* 12 percent of the overall defaults on subprime mortgages.[129] Economists Anthony Pennington-Cross and Giang Ho found that loans with teaser rates resulted in heightened rates of prepayment, not default.[130] Even when a foreclosure proceeding was initiated, mortgages with positive equity tended to terminate in a prepayment of the mortgage (by sale or refinance) whereas those with negative equity tended to terminate in foreclosure.[131]

Reviewing the causes of the foreclosure crisis, Foote, Gerardi, and Willen definitively conclude that "the data are not kind to the exploding ARM theory."[132] They note that even though many "early vintage" 2/28 mortgages (mortgages with two years of low, fixed, introductory rates followed by a reset to market rates) had large rate resets, they suffered very little increase in delinquencies when rates reset. Later-vintage hybrid mortgages, by contrast, had smaller resets and larger delinquency rates—with those that had no reset suffering the largest

[127] See Zywicki and Adamson, 80 U Colo L Rev at 28 (cited in note 24) (summarizing studies).
[128] Id. Of those subprime loans in foreclosure, 57 percent of 2/28 hybrids and 83 percent of 3/27 hybrids "had not yet undergone any upward reset of the interest rate." Id.
[129] Foote, et al, *Just the Facts* at 6 (cited in note 48).
[130] See Anthony Pennington-Cross and Giang Ho, *The Termination of Subprime Hybrid and Fixed Rate Mortgages**18 (Federal Reserve Bank of St Louis Working Paper No 2006-042A, 2006), online at http://research.stlouisfed.org/wp/2006/2006-042.pdf (visited May 2013).
[131] Anthony Pennington-Cross, *The Duration of Foreclosures in the Subprime Mortgage Market: A Competing Risks Model with Mixing**4–5 (Federal Reserve Bank of St Louis Working Paper No 2006-027A, 2006), online at http://research.stlouisfed.org/wp/2006/2006-027.pdf (visited May 2013).
[132] Foote, Gerardi, and Willen, *Why Did So Many People* at 5 (cited in note 7).

increase in delinquencies. Moreover, at the peak of the mortgage crisis the foreclosure rate on subprime fixed-rate mortgages (48 percent) was almost as high as that on subprime ARMs (53 percent), leaving little reason to believe that "exploding interest rates" on subprime ARMs was a major cause of the crisis.[133] More important than payment shock from allegedly "exploding ARMs," they note, were declining home prices, which provided underwater borrowers with an incentive to default.

Finally, to the extent that hybrid or adjustable-rate loans were associated with higher levels of default and foreclosure, this correlation may be a result of a selection effect bias rather than a reflection of the products themselves. It may be that borrowers with the most fragile finances are those most likely to choose an ARM or a hybrid loan with a teaser rate; their propensity to default may reflect *the borrower's* underlying riskiness rather than the riskiness of the products they choose.[134] Finally, mortgages with low introductory teaser rates would have been especially attractive to housing speculators who planned to flip the home during the introductory period and who would be most likely to exercise their option to default when housing prices fell.[135] Thus the higher rates of foreclosure on these mortgages may reflect an underlying adverse selection problem that they attracted borrowers with a higher propensity for default (strategic or otherwise), rather than the loan characteristics being the cause of defaults.

Finally, economic research has found that in deciding between fixed- and adjustable-rate mortgages, consumers do in fact generally choose rationally.[136] Although consumers, of course,

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[133] Id. at *6.
[134] See *Ending Mortgage Abuse: Safeguarding Homebuyers, Hearing before the Senate Subcommittee on Housing, Transportation and Community of the Senate Committee on Banking, Housing, and Urban Affairs*, 109th Cong, 1st Sess 5 (2007) (statement of Anthony M. Yezer, Professor of Economics, George Washington University).
[135] I am not aware of any empirical evidence that either supports or rejects the hypothesis that more home-flippers were more likely to select teaser rate mortgages, but the underlying economic theory is straightforward.
[136] Upinder S. Dhillon, James D. Shilling, and C.F. Sirmans, *Choosing Between Fixed and Adjustable Mortgages: Note*, 19 J Money, Credit & Banking 260 (1987); Jan K. Brueckner, *Borrower Mobility, Self-Selection, and the Relative Prices of Fixed- and Adjustable-Rate Mortgages*, 2 J Fin Intermediation 401 (1992).

make errors ex post in choosing between fixed- and adjustable-rate mortgages, available evidence indicates that as an ex ante matter they generally choose correctly based on their expected financial situation and time horizon. For example, households with more stable incomes and those with higher probability of moving in the near future are more likely to select adjustable-rate mortgages, just as economic theory would predict.[137] Behavioral law and economics theorists have provided no evidence that the selection patterns of borrowers during the housing boom fundamentally differed from this traditional pattern.

In short, it appears that every major prediction of behavioral law and economics as to explanations for the foreclosure crisis are contradicted by the available evidence. Complex mortgages were sold to sophisticated, not unsophisticated, borrowers. Resets on teaser rates in subprime mortgages were not a "central problem" the mortgage crisis, supposedly tricking consumers into thinking that loans "were less expensive than they really were" or preying on consumer overoptimism. And the complexity and unbundling of closing costs are not unique to the subprime market, but occur in all mortgage markets, and thus are not unique to subprime mortgages.

4. Beyond Mortgages: Behavioral Law and Economics Analysis of Credit Cards and Payday Lending

The problem of evidence that does not support behavioral law and economics hypotheses is not limited to mortgages. For example, behavioral law and economics scholars state that a problem with credit cards is that they can prey on consumers' purported myopia and overoptimism,

[137] See note 21 and accompanying text.

leading them to underestimate the likelihood that they will end up revolving balances.[138] Yet no economist believes that consumers do not make mistakes, especially when attempting to estimate the future. For the behavioral law and economics hypothesis to be confirmed, therefore, consumer errors about their likelihood of revolving must be systematically biased—that is, consumers must systematically err on the side of underestimating their propensity to revolve and not simply make randomly distributed errors in their expectation of their likelihood of revolving. In other words, the distribution of consumer's errors must be disproportionately one-tailed and not two-tailed.

But a study by Agarwal, Chomsisengphet, Liu, and Souleles found that not only did a majority of consumers choose the "correct" contract for themselves, consumer errors in choosing credit cards were unbiased, that is, two-tailed in their distribution of errors: consumers were just as likely to make errors of *overpessimism* about their ability to pay off their credit cards as overoptimism.[139] Although many consumers erred by believing that they would not revolve but then did, just as many erred by believing that they would revolve but then did not (in fact, they found that a slightly larger number of consumers erred by being unduly pessimistic than by being optimistic).[140] This finding of an unbiased error distribution is inconsistent with the behavioral

[138] See Oren Bar-Gill, *Seduction by Plastic*, 98Nw U L Rev 1373 (2004). Barr, Mullainathan, and Shafir are not as definitive in their conclusions as Bar-Gill and instead use vague assertions, such as consumers "might pick" suboptimal products or hold "probably vals" bankground assumptions. The offer no empirical support for these assertions, nevertheless they quickly turn to expansive policy interventions based on these speculations that may or may not actually be true. See Barr, Mullainathan, & Shafir, *Behaviorally Informed Regulation*, at 2, 6 (cited in note 114).

[139] Sumit Agarwal, et al., *Do Consumers Choose the Right Credit Contracts?*, Federal Reserve Bank of Chicago Working Paper WP 2006-11 (Oct 23, 2006), online at http://www.chicagofed.org/digital_assets/publications/working_papers/2006/wp2006_11.pdf (visited Sept 22, 2013).

[140] In fact, in a particularly striking example of the "just-so stories" tendency of behavioral law and economics, one study, purporting to support the behavioral law and economics hypothesis by showing that some consumers err by underestimating their likelihood of revolving, simply assumed that the error distribution was systematically biased and as a result did not report how many consumers overestimated their likelihood of revolving. Sha Yang, Livia Markoczy, and Min Qi, *Unrealistic Optimism in Consumer Credit Card Adoption*, 28 J Econ Psych 170, 177 (2007).

law and economics hypothesis, which predicts a much larger proportion of errors to be errors of underestimating one's likelihood of revolving.

Behavioral law and economics scholars have also argued that payday loans are designed to exploit consumer biases, especially the overoptimism bias. According to the behavioral law and economics hypothesis, payday loan customers would be predicted to overestimate the likelihood that they will repay their loan at the end of the initial loan period and thus to underestimate the likelihood that they will rollover the loan instead, incurring an additional round of fees to rollover the loan. As a result, the payday loan ends up being far more expensive than expected at the time the consumer originally entered into the loan. Bar-Gill and Warren write, "The payday loan product is arguably designed to take advantage of consumers' optimism bias and their consistent underestimation of their risk of nonpayment."[141] Notably, they provide no empirical evidence for the claim that consumers consistently underestimate their risk of nonpayment, merely armchair speculation.

Ronald Mann has shown, however, that there is no evidence that payday loan borrowers are systematically overoptimistic about their ability to repay their loans. Sixty percent of payday loan customers in his survey sample accurately predicted the amount of time that it would take them to pay off their loans. Moreover, among those who made errors, the distribution of the errors was unbiased: consumers were just as likely to overestimate of how long they expected to take to repay the loan as ti underestimate.[142]

V. Conclusion

[141] Bar-Gill and Warren, 157 U Penn L Rev at 56 (cited in note 3).
[142] See Ronald Mann, *Assessing the Optimism of Payday Loan Borrowers*, S Ct Econ Rev (forthcoming 2014).

The tone of this article is intentionally provocative: others have commented on the elastic nature of behavioral law and economics in being able to reach most any conclusion, its lack of strong empirical foundations in the real world, and its lack of testable hypotheses. The purpose of this article has been to try to make those criticisms more concrete by using the tools of behavioral law and economics to reach exactly the opposite conclusions with respect to mortgage products that supporters of behavioral law and economics reach. For purposes of this article, I have taken the underlying scientific validity of the claims of behavioral economics as given—to the extent that the underlying behavioral economics is suspect or not robust to changing context, then the claims of behavioral law and economics is weaker still. Moreover, traditional rational choice models provide a much more robust explanation of consumer mortgage selection and subsequent default than behavioral law and economics models.

Underlying the current state of behavioral law and economics are several fundamental, foundational problems that remain unaddressed. Most notably, behavioral law and economics implicitly rejects the fundamental premise of economics that *revealed* demand is the best indicator of a person's true preferences. But behavioral economics argues that it is somehow possible to know a person's "true" demand even if not revealed. Behavioral law and economics also implicitly assumes that it knows when a person's actions and decisions are the result of biases rather than maximization under conditions of scarcity and uncertainty. But this requires a theory of why certain biases apply in some contexts but are not thought to apply in other seemingly comparable contexts. In turn, this failure to be able to accurately specify the context-dependent nature of behavioral biases makes it difficult to know when certain biases explain decision making and whether certain policy interventions will correct rather than exacerbate the underlying problems.

All of this adds up to a "science" that is still in its embryonic phase and simply not ready for experimentation on human subjects. To be sure, individuals do not always act consistently with the predictions of rational economic theory. But it is equally obviously that individuals are not always as foolish as behavioral law and economics supposes—and more important, policymakers have limited capacity to distinguish the two groups. Today, behavioral law and economics consists largely of a series of post hoc just-so stories that purport to explain large social phenomena, but in fact provide testable explanations for only a small part of it.