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Macroprudential Regulation of Mortgage Lending

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MACROPRUDENTIAL REGULATION OF MORTGAGE LENDING

Steven L. Schwarcz*

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INTRODUCTION

IT is widely recognized that the bursting of the United States housing bubble was a primary precipitating factor of the 2007-2008 global financial crisis (financial crisis).¹ Simply because of its size, housing finance remains a major potential source of systemic weakness.² Housing represented 25% of aggregate U.S. household wealth in 2011,³ and is reputed to be one of the largest asset classes in the world.⁴ Residential con-

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1. See Steven L. Schwarcz, *Securitization, Structured Finance, and Covered Bonds*, 39 J. CORP. L. 129, 130 (2013) (describing the “precipitous” drop in housing prices as a catalyst of the financial crisis).

2. See Paul S. Willen, *Evaluating Policies to Prevent Another Crisis: An Economist’s View* (Nat’l Bureau of Econ. Research, Working Paper No. 20100, 2014), <http://www.nber.org/papers/w20100> [<https://perma.cc/2Q3T-LLKU>].

3. Alfred Gottschalck, Marina Vornovytksyy & Adam Smith, *Household Wealth in the U.S.: 2000 to 2011*, U.S. Census Bureau (2014), <http://www.census.gov/people/wealth/files/Wealth%20Highlights%202011%20Revised%207-3-14.pdf> [<https://perma.cc/2AVL-AJUE>].

4. Cf. Sarah Jane Johnston, *Real Estate: The Most Imperfect Asset*, Harvard Business School Working Knowledge (Aug. 30, 2004), <http://hbswk.hbs.edu/item/real-estate-the-most-imperfect-asset> [<https://perma.cc/XXN6-DQJL>] (stating that “real estate is the largest asset class in the world—the value of housing in the United States alone is \$16 trillion”).

struction investment has also represented over 4.5% of U.S. gross domestic product (GDP) since 1944.⁵

Much regulatory effort is being devoted to improving mortgage lending, the principal source of housing finance. Bubb and Krishnamurthy argue, for example, that reducing leverage by requiring higher down payments on mortgage loans would not only provide homeowners with a larger equity cushion against the risk of declining housing prices, but also serve to undercut housing price bubbles.⁶ Others argue for improving contract design. Eberly and Krishnamurthy propose mortgage contracts that automatically adjust interest rates downward in times of economic stress.⁷ Willen proposes mortgage contracts that require mandatory renegotiation to avoid default.⁸

Additional regulatory effort is being devoted to improving securitization, the most important means of monetizing mortgage loans to enable mortgage lenders to multiply their available funding.⁹ This focus is largely to fix the problem of asymmetric information, a classic market failure that impacts the securitization markets.¹⁰ Disclosure is the traditional solution to correct this market failure.¹¹ Increased disclosure aimed at reducing asymmetric information in securitization transactions is indeed one of the central themes of the Dodd-Frank Act (Dodd-Frank).¹² However, some have questioned whether the complexity of securitization and other modern financial products and markets undermines disclosure's

5. *Graph: Private Residential Fixed Investment/Gross Domestic Product*, FED. RES. BANK OF ST. LOUIS, <https://research.stlouisfed.org/fred2/graph/?g=E0I#> [<https://perma.cc/Q7ET-ATB4>].

6. Ryan Bubb & Prasad Krishnamurthy, *Regulating Against Bubbles: How Mortgage Regulation Can Keep Main Street and Wall Street Safe—From Themselves*, 163 U. PA. L. REV. 1539 (2015). I later discuss reducing mortgage-loan leverage in a more macroprudential context. *Cf. infra* notes 46-48 and accompanying text (discussing the Federal Reserve's promulgation of Regulations G, U, T, and X after the Great Depression).

7. Janice Eberly & Arvind Krishnamurthy, *Efficient Credit Policies in a Housing Debt Crisis*, 49 BROOKINGS PAPERS ON ECON. ACTIVITY 73 (2014).

8. Willen, *supra* note 2, at 4.

9. In a typical securitization, a sponsor will purchase a pool of mortgage loans from originators and transfer them to a special purpose entity (SPE). The SPE will issue securities to investors, repayable from the periodic mortgage-loan payments. Within a single mortgage pool there are often different levels of risk exposure, or tranches, available. Securitization enables mortgage lenders to multiply their available funding by selling off their loans for cash, from which they can make new loans. Otherwise mortgage lenders would have to carry the mortgage loans on their books and recoup the principal over many years.

10. *See, e.g.*, Richard E. Mendales, *Collateralized Explosive Devices: Why Securities Regulation Failed to Prevent the CDO Meltdown, and How to Fix it*, 2009 U. ILL. L. REV. 1360 (2009); Michael Simkovic, *Secret Liens and the Financial Crisis of 2008*, 83 AMER. BANKR. L. J. 253 (2009).

11. *See, e.g.*, Paul M. Healy & Krishna G. Palepu, *Information Asymmetry, Corporate Disclosure, and Capital Markets: A Review of the Empirical Disclosure Literature*, 31 J. ACCT. & ECON. 405, 406 (2001) (“We argue that demand for financial reporting and disclosure arises from information asymmetry and agency conflicts”).

12. Dodd-Frank Wall St. Reform and Consumer Protection Act of 2010 § 942(b), 15 U.S.C. § 78o (2012) (requiring, for each issue of asset-backed securities, the disclosure of information regarding the financial assets backing each class (sometimes called “tranche”) of those securities).

effectiveness.¹³

These regulatory efforts, while important, are primarily microprudential¹⁴—intended to correct market failures in order to increase economic efficiency. In contrast, and while there is some overlap,¹⁵ this Article focuses on a more “macroprudential” regulation of mortgage lending—intended to reduce systemic risk, the risk that a cascading failure of financial system components (e.g., markets or firms) undermines the system’s ability to generate capital, or increases the cost of capital, thereby harming the real economy.¹⁶ Although largely underdeveloped in the literature,¹⁷ the macroprudential regulation of mortgage lending would have two goals: an ex ante goal of preventing systemic shocks in housing finance and the housing sector, and an ex post goal of ensuring that housing finance, the housing sector, and the financial system more broadly are robust enough to resist contagion and mitigate adverse consequences if and when systemic shocks occur.

To that end, Part I of this article examines how macroprudential regulation of mortgage lending could help to prevent systemic shocks in housing finance and the housing sector. Part II thereafter examines how macroprudential regulation could help to make housing finance, the housing sector, and the financial system itself more resistant to systemic shocks. Finally, Part III places the regulation of mortgage lending into perspective, arguing that mortgage lending is significant, but only one potential source of systemic risk.

I. EX ANTE MACROPRUDENTIAL REGULATION

How can macroprudential regulation of mortgage lending help to prevent systemic shocks in housing finance and the housing sector? I will

13. Steven L. Schwarcz, *Disclosure’s Failure in the Subprime Mortgage Crisis*, 2008 UTAH L. REV. 1109 (2008).

14. Bubb and Krishnamurthy, *supra* note 6, at 1564 (stating that their approach is also macroprudential). I later argue it is more microprudential than macroprudential. *See infra* notes 37-40 and accompanying text.

15. *See infra* notes 35-36 and accompanying text (discussing certain overlap between microprudential and macroprudential regulation of mortgage lending). This overlap parallels a broader overlap between microprudential and macroprudential financial regulation. *See, e.g.*, Peter O. Mulbert, *Managing Risk in the Financial System*, Ch. 13 in THE OXFORD HANDBOOK OF FINANCIAL REGULATION 364, 366 (Niamh Moloney, Eilis Ferran, & Jennifer Payne, eds., 2015) (observing that “some [financial regulatory] tools have a dual function, reducing both risks to the soundness of individual firms and systemic risk to financial stability”).

16. Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 207-08 (2008).

17. There has been little meaningful work to date specifically examining macroprudential regulation of mortgage lending to reduce systemic risk. Several scholars, however, have begun to examine the macroprudential impact of loan-to-value and debt-to-income requirements in mortgage lending. *See, e.g.*, Ozge Akinci & Jane Olmstead-Rumsey, *How Effective are Macroprudential Policies? An Empirical Investigation* (Board of Governors of the Federal Reserve System, International Finance Discussion Papers No. 1136, 2015); Salim M. Darbar & Xiaoyong Wu, *Experiences with Macroprudential Policy—Five Case Studies* (IMF Working Paper 15/123, 2015); Ivo Krznar & James Morsink, *With Great Power Comes Great Responsibility: Macroprudential Tools at Work in Canada* (IMF Working Paper 14/83, 2014).

focus on two possible approaches: reducing moral hazard in mortgage-loan origination and requiring a minimum level of overcollateralization.

A. REDUCING MORAL HAZARD IN MORTGAGE-LOAN ORIGINATION

It is widely believed that moral hazard resulting from the originate-to-distribute (OTD) model of mortgage-loan origination (under which lenders sell off their loans as they are made) caused lax mortgage-loan “underwriting”¹⁸ standards.¹⁹ It is also widely believed that the solution is to require originator risk retention.²⁰

To attempt to limit that moral hazard, Dodd-Frank § 941 requires securitizers—who are effectively originators or sponsors of the securitization²¹—to retain a portion of the credit risk (so-called “skin in the game”) for any financial asset (including mortgage loans, other than Qualified Residential Mortgages²²) that the securitizer, through the issuance of an asset-backed security, transfers, sells, or conveys to a third party. For example, securitizers are required to retain at least 5% of the credit risk for non-qualified residential mortgage-loan assets that they transfer, sell, or convey through the issuance of an asset-backed security. The regulations prohibit securitizers from directly or indirectly hedging or otherwise transferring the credit risk they are required to retain with respect to an asset.²³

18. “Underwriting” means, in this context, the standards under which mortgage loans are made, or originated. In the context of issuing securities to investors, the term has a different meaning—the process by which securities firms sell those securities to the investors.

19. See, e.g., Jeff Holt, *A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper*, 8 J. BUS. INQUIRY 120, 120-129 (2009), <https://www.uvu.edu/woodbury/docs/summaryoftheprietarycauseofthehousingbubble.pdf> [<https://perma.cc/36HZ-5DT4>] (finding that loose lending standards were a primary cause of the housing bubble); Martin Feldstein, *How to Stop the Mortgage Crisis*, WALL ST. J., Mar. 7 2008, at A15 (stating that “[i]rresponsible lending created new mortgages with [loan-to-value] ratios of nearly 100%”).

20. Bubb & Krishnamurthy, *supra* note 6, at 1545-46.

21. More technically, a securitizer is either an issuer of an asset-backed security or a person who organizes and initiates an asset-backed securities transaction by selling or transferring assets either directly or indirectly, including through an affiliate, to the issuer. 15 U.S.C. § 78o-11.

22. Qualified Residential Mortgage (QRM) is a designation based on a borrower’s ability to repay the mortgage loan at origination, a verification of the borrower’s income, and certain other relevant considerations. 2 CFR § 1026 (2015). I have separately argued that the QRM designation also be satisfied by a mortgage loan being overcollateralized at some prescribed minimum level that signals a high likelihood of repayment. Whatever the QRM designation should be, it appears that the vast majority of mortgage lending may currently qualify as such under the existing designation. Cf. National Association of Realtors, *8th Survey of Mortgage Originators: TRID, FHA’s Certification Policy and Small Lenders Exemption to the ATR* (Oct. 2015), <http://www.realtor.org/reports/october-2015-mortgage-originators-survey> [<https://perma.cc/V8X2-AVFX>] (finding for its reporting period, first-quarter 2014 through third-quarter 2015, that between 84.6% and 93.0% of mortgage-loan origination was for “safe harbor” qualified mortgages). Securitizers of QRM loans are not subject to risk-retention requirements.

23. Dodd-Frank Act § 946 also requires the chairman of the Financial Services Oversight Council (FSOC) to study the macroeconomic effects of the risk-retention requirements, with emphasis placed on potential beneficial effects with respect to stabilizing the

It is unclear, however, whether a legal risk-retention requirement will improve financial asset quality. In my experience, the market itself has always mandated risk-retention.²⁴ Prior to the financial crisis, for example, originators and sponsors of securitizations usually retained risk on the financial assets, typically mortgage loans, included in those transactions. The problem, however, was that originators and sponsors, as well as investors, generally overvalued those assets.²⁵ That is in part because of the irrational characteristic of asset-price bubbles: the unfounded belief that downside risk—in that case, the risk of home prices plummeting—will never be realized.²⁶ Asset-price bubbles can also result from economy-wide excess credit and liquidity, factors that are much broader than mortgage lending or the housing market.²⁷

It is also unclear whether the originate-to-distribute model of loan origination actually caused morally hazardous behavior, thereby lowering mortgage-loan underwriting standards.²⁸ In theory, separation of origination and ownership should not matter because ultimate owners should assess and value risk before buying their ownership positions.²⁹ If the originate-to-distribute model did not cause a lowering of underwriting standards, then risk-retention requirements may have little effect.³⁰

real estate market. This study shall include an analysis of the effects of risk-retention on real estate asset price bubbles, including a retrospective estimate of what fraction of real estate losses may have been averted had such requirements been in force in recent years; an analysis of the feasibility of minimizing real estate bubbles by proactively adjusting the percentage of risk-retention that must be borne by creditors and securitizers of real estate debt, as a function of regional or national market conditions; a comparable analysis for proactively adjusting mortgage origination requirements; an assessment of whether such proactive adjustments should be made by an independent regulator (or in a formulaic and transparent manner); and an assessment of whether such adjustments should take place independently or in concert with monetary policy.

24. My experience is consistent with what economic theory would predict: that if some form of risk retention by a seller is optimal to align incentives, then market participants will contract for it. *See* Bubb & Krishnamurthy, *supra* note 6, at 1546.

25. *Id.* at 1547.

26. *See id.* at 1546 (“[O]veroptimism about future house prices in a bubble leads market participants to underweigh the probability of default and blunts the incentive benefits of risk retention.”). The most infamous example of a bubble may be the 17th century Dutch tulip-bulb bubble.

27. *See* *Securitization, Structured Finance, and Covered Bonds*, *supra* note 1, at 129-30 (observing that there was pressure to lend to risky borrowers and that there was a “liquidity glut”); *see also* Steven L. Schwarcz, *Understanding the Subprime Financial Crisis*, 60 S.C. L. REV. 549, 551 (2008-2009) (describing the causes of the financial crisis).

28. *Cf.* Bubb & Krishnamurthy, *supra* note 6, at 1547 (stating that the “most influential evidence purportedly showing that securitization led to lax screening has now been discredited.”).

29. Steven L. Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211, 257 (2009). In practice, separation of ownership and origination might matter. By separating the ultimate owners of the loans from the actual lenders, an originate-and-distribute model might make it difficult for those owners to always see the big picture. Separating the ultimate owners might also reduce the size of any given owner’s investment below an amount sufficient to motivate the owner to engage in due diligence and monitoring. *Id.*

30. *Cf.* Kevin Villani, *Risk-Retention Rules Set Up the Private Investor for Failure*, AMERICAN BANKER (Aug. 29, 2011), <http://www.americanbanker.com/bankthink/QRM-qualifying-residential-mortgage-risk-retention-housing-private-investor-1041645-1.html>

Risk-retention might not merely be insufficient but also dangerous, leading to a “mutual misinformation” problem. By retaining residual risk portions of certain complex securitization products they were selling prior to the financial crisis, securities underwriters may actually have fostered false investor confidence, contributing to the crisis.³¹

B. REQUIRING A MINIMUM LEVEL OF OVERCOLLATERALIZATION

Overcollateralization refers to the ratio by which a loan’s collateral value exceeds the amount of the loan.³² In the context of mortgage lending, this is sometimes referred to as the loan-to-value (LTV) ratio or as the amount of homeowner “leverage.”³³ Whatever that term is called, prudent asset-based lending always requires that the loan’s collateral value exceeds the amount of the loan by some ratio.³⁴ The higher the ratio (other things being equal), the more likely the loan will be repaid.

Macroprudential regulation that requires a minimum level of overcollateralization can overlap with the consumer-oriented regulatory goal of providing homeowners with a larger equity cushion against the risk of declining home prices.³⁵ The key practical difference may turn on how the regulation functions.³⁶ For example, Professors Bubb and Krishnamurthy argue for overcollateralizing mortgage loans.³⁷ Under the distributive law of mathematics, that could theoretically be both a microprudential requirement (requiring borrowers individually to maintain a minimum level of overcollateralization) and a macroprudential re-

[<https://perma.cc/R5RK-NGJU>] (arguing that lack of “skin in the game” was not responsible for financial firms’ “astronomical leverage”).

31. See *Regulating Complexity in Financial Markets*, *supra* note 29, at 241-42. Cf. Wilen, *supra* note 2, at 18 (arguing that “investors lose money not when more borrowers default but when more borrowers default *than expected*. With more risk retention, investors would have expected more effort and fewer defaults”). Professors Bubb and Krishnamurthy further argue that requiring securitizers to retain risk is imperfect when the securitizers are not the originators, and thus do not have the information. Bubb & Krishnamurthy, *supra* note 6, at 1569.

32. IFTIKHAR U. HYDER, BARCLAYS, CDO & STRUCTURED FUNDS GROUP, THE BARCLAYS CAPITAL GUIDE TO CASH FLOW COLLATERALIZED DEBT OBLIGATIONS 25 (2002). Professors Bubb and Krishnamurthy refer to the relationship between a loan’s collateral value and the amount of the loan as “leverage.” See *supra* note 6 and accompanying text.

33. See Bubb & Krishnamurthy, *supra* note 6, at 1610 (describing the relationship between leverage and Combined Loan to Value (CLTV)). CLTV and LTV are substantially similar concepts, the only difference being that CLTV captures the total amount of all loans secured by a property, whereas LTV captures only a single loan. For a residence securing only a single loan, CLTV is equal to LTV.

34. See, e.g., Adam J. Levitin & Susan M. Wachter, *Explaining the Housing Bubble*, 100 GEO. L. J. 1177, 1188 (2012).

35. See *supra* note 6 and accompanying text. Professors Bubb and Krishnamurthy appear to be aware of this overlap. See, e.g., Bubb & Krishnamurthy, *supra* note 6, at 1611-18 (observing that requiring higher down payments would generally make housing finance more robust).

36. See Mulbert, *supra* note 15, at 392-93 (observing that when “macro-economic tools . . . operate at the level of individual firms[,] it is often difficult to separate micro-and macro-economic objectives”; and that the tool’s function may reveal the objective).

37. Bubb & Krishnamurthy, *supra* note 6, at 1610.

quirement (requiring all mortgage loans to maintain that level of overcollateralization).

Bubb and Krishnamurthy indeed see their overcollateralization proposal as having both microprudential and macroprudential objectives: the former, helping to protect individual homeowners against a decline in housing prices;³⁸ the latter, helping to reduce housing price bubbles.³⁹ However, the way their proposal would function—to require at least 10% overcollateralization⁴⁰—is more microprudential than macroprudential. Even assuming that 10% overcollateralization is realistic for many homeowners to achieve (through a down payment),⁴¹ while providing society some protection against a decline in housing prices, it is almost certainly insufficient to prevent another systemic meltdown if housing prices collapse.

In the financial crisis, for example, housing prices collapsed by over 35%—much greater than even occurred during the Great Depression.⁴² In rating mortgage-backed securities, rating agencies such as Standard & Poor's conservatively—so they thought—assumed that housing prices might drop as much as 20%.⁴³ Macroprudential regulation should probably stress historical assumptions more robustly. The Federal Reserve's post-Depression macroprudential regulatory response to margin lending—borrowing to purchase shares of stock—provides a case in point.

Prior to the Great Depression, many banks engaged in margin lending to risky borrowers, who secured their loans by pledging the purchased stock as collateral. An extended bull market led many to believe the stock market would continue to rise, and thus margin loans would be adequately secured.⁴⁴ In August 1929, however, a decline in stock prices caused some of these margin loans to become undercollateralized. Banks that were heavily engaged in margin lending lost so much money on the loans that they became unable to fulfill demands of depositors and, of

38. *Id.*

39. *Id.*; see also *supra* note 6 and accompanying text.

40. Bubb & Krishnamurthy, *supra* note 6, at 1610.

41. *But cf. infra* note 50 (finding that the added benefits of reduced foreclosures resulting from merely a 90% LTV requirement do not necessarily outweigh the costs of reducing the access of low-income borrowers and borrowers of color to mortgage lending).

42. This 35% figure is based on the S&P Case-Shiller 20-City Composite Home Price Index peak to trough, <http://us.spindices.com/indices/real-estate/sp-case-shiller-20-city-composite-home-price-index> [<https://perma.cc/J29T-4AMK>]; see also Al Yoon, *Home Price Drops Exceed Great Depression: Zillow*, REUTERS, Jan. 11, 2011, <http://www.reuters.com/article/2011/01/11/us-usa-housing-prices-idUSTRE70961E20110111> [<https://perma.cc/L9LB-LH5J>].

43. *Wall Street and the Financial Crisis: The Role of Credit Rating Agencies*, Hearing Before the Subcomm. on Investigations of the S. Comm. On Homeland Sec. and Governmental Affairs, 111th Cong. (2010) (statement of Susan Barnes, Managing Director, Standard & Poor's Rating Services), <http://www.hsgac.senate.gov/subcommittees/investigations/hearings/wall-street-and-the-financial-crisis-the-role-of-credit-rating-agencies> [<https://perma.cc/EU4U-H8C2>].

44. This discussion is based on Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1356-57, 1359-60 (2011).

more systemic importance, other banks. Defaults by margin lenders adversely affected other banks' abilities to meet their obligations to yet other banks, and "so on down the chain of banks and beyond."⁴⁵ The parallels to the housing bubble, the subsequent decline in housing prices, and the resulting financial crisis are apparent.

In response to margin-lending concerns, the U.S. Federal Reserve promulgated Regulations G, U, T, and X.⁴⁶ Broadly speaking, these regulations govern credit extended by banks, brokers, and dealers. Regulation U, for example, requires that margin lending by banks be secured by collateral worth at least twice as much as the loan amount—effectively 100% overcollateralization—or else the lender must independently verify that the borrower is able to repay the loan.⁴⁷ Such overcollateralization would in theory allow the stock market to lose half its value while still providing adequate collateral value to repay the lender. Some argue that, since the Great Depression, Regulation U has been instrumental in avoiding problems from subprime margin lending.⁴⁸

It is doubtful, however, that anything near the high level of 100% overcollateralization imposed by the Federal Reserve on margin loans after the Great Depression could politically, or should socially, be imposed on mortgage lending.⁴⁹ The impact of homeownership would be much too regressive.⁵⁰ Unlike borrowing to purchase shares of stock, borrowing to

45. George G. Kaufman, *Bank Failures, Systemic Risk, and Bank Regulation*, 16 CATO J. 17, 21 (1996).

46. See Robert J. Gareis & Jerome W. Jakubik, *The United States Securities Credit Regulations: How they Affect Foreign Lenders In Acquisitions of US Companies*, 4 J. COMP. & CORP. & SECS. REG. 291 (1982) (describing the purpose and implementation of securities credit regulations).

47. 12 C.F.R. § 221 (2015). Subject to a number of regulatory exceptions, a loan falls under Regulation U if it (1) is secured by "margin stock," (2) is intended to finance the purchase of margin stock, and (3) does not otherwise qualify for an exemption.

48. See, e.g., Gikas A. Hardouvelis, *Margin Requirements, Volatility, and the Transitory Component of Stock Prices*, 80 AMER. ECON. REV. 736, 745-54 (1990) (finding a statistically significant negative relationship between margin levels and stock market volatility and excess volatility in the post-Depression period). *But cf.* Peter Fortune, *Margin Lending and Stock Market Volatility*, 2011(4) NEW ENGLAND ECON. REV. 3 (2001) (finding that "the practical value of an active margin loan policy is limited").

49. For this reason, the proposal that the QRM designation also be satisfied by a mortgage loan being overcollateralized at some prescribed minimum level is intended as an optional safe harbor, not a requirement. See *supra* note 22.

50. Cf. Roberto G. Quercia, Lei Ding, & Carolina Reid, *Balancing Risk and Access: Underwriting Standards and Qualified Residential Mortgages* (Jan. 2012 Research Report, Center for Responsible Lending), <http://www.responsiblelending.org/sites/default/files/nodes/files/research-publication/Underwriting-Standards-for-Qualified-Residential-Mortgages.pdf> [<https://perma.cc/GT7T-HN6P>] (finding that the added benefits of reduced foreclosures resulting from LTV requirements of 80 or 90 percent do not necessarily outweigh the costs of reducing the access of borrowers—especially low-income borrowers and borrowers of color—to mortgage lending). Bubb and Krishnamurthy concede that there will be costs associated with requiring higher down payments, especially for borrowers with limited resources. However, they argue that the costs should be low for three reasons: (1) increased down payments would increase incentives to save, (2) interest rates would decrease due to lower incidence of default, making housing more affordable, and (3) fewer defaults would reduce home price volatility, thereby making housing more affordable throughout housing cycles. Bubb & Krishnamurthy, *supra* note 6, at 1619-22.

purchase a home is seen not only as a public good but also, given the high cost of housing, a necessity.⁵¹

In summary, ex ante macroprudential regulation of mortgage lending—or at least the types of such regulation that I have identified—cannot completely prevent systemic shocks in housing finance and the housing sector. Regulation cannot completely reduce moral hazard in mortgage-loan origination because, among other factors, irrationality drives asset-price bubbles. Attempts to reduce moral hazard might also be dangerous. Attempts to use overcollateralization (or similar approaches) to increase the creditworthiness of mortgage loans can help to protect individual homeowners but are unlikely to prevent a systemic meltdown if housing prices collapse.

Because macroprudential regulation cannot prevent those systemic shocks, they will inevitably occur. Part II next examines whether ex post macroprudential regulation could help to make housing finance, the housing sector, and the financial system itself more resistant to systemic shocks.⁵²

II. EX POST MACROPRUDENTIAL REGULATION

In previous articles, Professor Anabtawi and I have examined how ex post macroprudential regulation could help to mitigate the impact of a systemic failure within the financial system.⁵³ In principle, those same types of regulatory strategies should help to mitigate the impact of a systemic failure regardless of the cause of that failure. Those strategies are, generally, to provide financial safety nets and to disrupt transmission chains.⁵⁴ In this Article, I will examine if there are ways to provide these financial safety nets and to disrupt transmission chains that are specific to housing finance and the housing sector.

A. PROVIDING FINANCIAL SAFETY NETS

In the context of financial safety nets, Anabtawi and I have proposed an expansion of the concept of a governmental liquidity provider of last resort. First, such a liquidity provider should be designed to protect not only systemically important financial firms, but also the stability of systemically important financial markets, since markets are increasingly im-

51. See, e.g., Nick Timiraos, *Report: Half of All Homes Are Being Purchased With Cash*, WALL ST. J. REAL ESTATE DEVELOPMENTS, Aug. 15, 2013, <http://blogs.wsj.com/developments/2013/08/15/report-half-of-all-homes-are-being-purchased-with-cash/> [https://perma.cc/3K5Q-4STK] (stating that before the financial crisis, over two-thirds of all home purchases were financed).

52. Cf. Steven L. Schwarcz, *Controlling Financial Chaos: The Power and Limits of Law*, 2012 WIS. L. REV. 815, 829-38 (arguing that financial chaos is inevitable, and therefore macroprudential regulation should also be aimed at limiting the consequences of systemic shocks).

53. See, e.g., Iman Anabtawi & Steven L. Schwarcz, *Regulating Ex Post: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75, 102 et seq. (2013); *Controlling Financial Chaos*, *supra* note 52.

54. Anabtawi & Schwarcz, *supra* note 53, at 103-121.

portant components of the financial system.⁵⁵ Second, the funding for such a liquidity provider should be privatized, much like the federal government agency that insures bank deposits requires participating banks to fund the effective insurance cost.⁵⁶ If implemented, these same strategies should help to mitigate the systemic impact of a collapse of housing finance and the housing sector because the ultimate components of the financial system, regardless of what causes its collapse, are financial firms and financial markets.⁵⁷

In thinking about financial safety nets, it might also be worth considering whether safety nets could be designed to help prevent the collapse of housing finance and the housing sector.⁵⁸ That could be done by supporting housing prices and/or the value of mortgage loans. I am highly dubious that government should be in the business of supporting housing prices. Even if a government wanted to do that, I am also dubious that any government would have the financial resources to accomplish that. Similarly, I question whether government should attempt, or would have the financial resources, to support the value of mortgage loans. At least two economists have nonetheless suggested the possibility of the government helping homeowners to avoid default.⁵⁹

B. DISRUPTING TRANSMISSION CHAINS

Ex post macroprudential regulation could address systemic risk not only by providing financial safety nets, but also by seeking to disrupt the mechanisms, or transmission chains, by which systemic risk travels. In that context, Anabtawi and I have examined disruption strategies, focusing on two: reducing interactive complexity, such as resolving complex capital structures of troubled firms in order to reduce the breadth and depth of the consequences of a default,⁶⁰ and reducing tight coupling, such as slowing or suspending a buildup of systemic consequences.⁶¹

Those disruption strategies do not appear to be relevant to housing finance and the housing sector per se (and indeed there appears to be

55. Anabtawi & Schwarcz, *supra* note 53, at 106-12.

56. *Controlling Financial Chaos*, *supra* note 52, at 829-30.

57. *See supra* note 16 and accompanying text.

58. Although this approach would also have the ex ante goal of preventing systemic shocks, its discussion logically fits into this safety-net context.

59. *See Eberly & Krishnamurthy*, *supra* note 7, at 92. These authors compare two ways by which the government could help homeowners to avoid default: first, by requiring lenders to write down principal that homeowners cannot pay; second, by making direct government payments to homeowners as needed to enable them to pay their mortgage installments. They marginally favor the latter approach because it would alleviate consumption constraints in the current period, thereby allowing consumers to spend money elsewhere. A principal reduction on the other hand does not address current consumption constraints, and thus distressed borrowers are forced to consume less, which could cause a macroeconomic shock. Assuming the government has the financial resources to make those payments, I question whether that approach could be implemented without generating unacceptable moral hazard.

60. Anabtawi & Schwarcz, *supra* note 53, at 113-17.

61. *Id.* at 117-21.

little about disrupting transmission chains that is specific to housing). Housing pricing and mortgage lending are relatively straightforward and have little interactive complexity.⁶² Also, because a disturbance to one part of the housing sector—whether pricing or mortgage lending—is unlikely to “spread almost instantaneously to other parts of the” sector,⁶³ housing appears to lack tight coupling.

For these reasons, it appears that ex post macroprudential regulation would add little to the ex ante macroprudential regulation of mortgage lending which, I have already shown, cannot completely prevent systemic shocks in housing finance and the housing sector.⁶⁴ To that extent, mortgage lending may well remain a possible source of systemic risk. I next attempt to place that source into perspective.

III. PLACING THE REGULATION OF MORTGAGE LENDING INTO PERSPECTIVE

Mortgage lending is only one, albeit a significant,⁶⁵ possible source of systemic risk. Even if, contrary to this Article’s findings, the macroprudential regulation of mortgage lending could eliminate systemic risk resulting from the collapse of housing finance and the housing sector, there are many other potential sources of systemic risk. For example, just narrowly focusing on other types of lending, there are a multitude of asset classes used as collateral for which the collapse of a pricing bubble could trigger a broader financial meltdown. I have already mentioned how an unanticipated fall in the price of shares of stock caused margin loans to default, triggering the Great Depression.⁶⁶ The same rise and fall in collateral value could occur for loans secured, for example, by automobiles,⁶⁷ rights to payment on intellectual property and patents, or even asset classes not yet in existence. We should not, in other words, be so naive to think that improving mortgage lending will, or ever could, avoid systemic risk.⁶⁸

We also should put the amount and quality of mortgage lending into political perspective. At least in the United States, the ability of securi-

62. *Cf. id.* at 93-94 (observing that a system “is interactively complex if the relationships among its elements exhibit unexpected sequences . . . that are either unobservable or incomprehensible”).

63. *Id.* at 94 (explaining tight coupling).

64. Because housing pricing and mortgage lending have little interactive complexity or tight coupling, one might presume that they do not enable a transmission chain by which systemic risk can travel in the first place. As the financial crisis has shown, however, they can cause systemic shocks that are transmitted in other ways—in the case of the financial crisis, through a collapse of the debt markets.

65. *See supra* notes 2-5 and accompanying text.

66. *See supra* notes 44-45 and accompanying text.

67. *Cf.* Ryan Tracy, *Regulator Raises Red Flag on Auto Lending*, WALL ST. J., Oct. 21, 2015 (reporting a speech in which U.S. Comptroller of the Currency, Thomas Curry, said that some activity in automobile lending “reminds [him] of what happened in mortgage-backed securities in the run-up to the [financial] crisis”).

68. *Cf.* Ryan Tracy, *Feds Win Fight Over Risky-Looking Loans*, WALL ST. J., Dec. 3, 2015, at A1 (discussing the Federal Reserve’s efforts to restrict leveraged loans).

tization to be used as a multiplier of mortgage-loan money, enabling the country's high amount of mortgage lending, is significantly tied to § 3(c)(5)(C) of the Investment Company Act of 1940, which exempts special purpose entities whose assets consist primarily of mortgage loans from that Act's restrictions.⁶⁹ Also, the reduction of lending standards and resulting spike in subprime mortgage lending that preceded the financial crisis were prompted by Congressional pressure on the mortgage-lending sector to make home ownership more egalitarian and widely available.⁷⁰ Politics, in other words, inadvertently contributed to mortgage lending becoming a significant source of systemic risk.⁷¹

CONCLUSIONS

Much of the regulatory effort being devoted to improving mortgage lending has a primarily microprudential focus: to correct market failures in order to increase economic efficiency. This Article focuses on the macroprudential regulation of mortgage lending to reduce systemic risk. The Article shows that although the regulation of mortgage lending could help to reduce systemic shocks, it could not realistically eliminate those

69. *See supra* note 9 (describing securitization). That exemption long preceded the advent of securitization as a financing tool. Congress exempted entities primarily investing in mortgages and mortgage-related instruments from the Investment Company Act of 1940 simply because such investments "do not come within the generally understood concept of a conventional investment company investing in stocks and bonds of corporate issuers." H.R. Rep. No. 1382, 91st Cong., 2d Sess. 17 (1970). Query whether, given the rise of mortgage loans as a discrete investment asset class, this policy justification still makes sense. If not, perhaps the exemption may be justified on increasing liquidity and availability of mortgage financing.

70. PETER J. WALLISON, DISSENT FROM THE MAJORITY REPORT OF THE FINANCIAL CRISIS INQUIRY COMMISSION (Jan. 14, 2011) (arguing that Congress pressured the U.S. Department of Housing and Urban Development (HUD) to increase home ownership by calling for reduced mortgage underwriting standards, including encouraging greater subprime and other high-risk lending).

71. Politics can distort financial regulation of mortgage lending in other ways. For example, the politically driven QRM designation (*see supra* note 22 and accompanying text) may, on balance, harm consumers. Because it provides a degree of safe-harbor protection to mortgage lenders (*see id.*), the designation serves to protect those lenders. That motivates mortgage lenders to want to make only QRM-designated loans. *See supra* note 22 (observing that the vast majority of mortgage lending may currently be limited to QRM-designated loans). But that high lending standard can make it harder for low-income and minority consumers to borrow to purchase a home. *Cf. supra* note 50 (observing that higher lending standards can be regressive). Furthermore, any macroprudential regulatory benefits from the QRM designation might not, on balance, benefit society, much less those consumers. Those benefits might not benefit society because the originate-to-distribute model of loan origination, which the QRM designation is intended to protect against, might not have lowered mortgage-loan underwriting standards. *See supra* notes 28-30 and accompanying text. And those benefits might not benefit low-income and minority consumers because those consumers may well prefer to take a borrowing risk to buy a home. If they ultimately default, they could (in many states) walk away from their homes with no liability for a payment deficiency; and to the extent the QRM designation might actually reduce systemic risk, they would not benefit from that reduction because most systemic harm would be externalized onto wealthier members of the public. *Cf. Steven L. Schwarcz, "Misalignment: Corporate Risk-Taking and Public Duty,"* <http://ssrn.com/abstract=2644375> [<https://perma.cc/3SGB-J9XF>] (explaining why risk-takers are not incentivized under current law to internalize the costs of systemic risk-taking).

shocks. Therefore, this Article argues that regulation should also be designed to try to make housing finance, the housing sector, and ideally also the financial system itself, robust enough to resist contagion and mitigate adverse consequences when systemic shocks inevitably occur.