2008 FINANCIAL CRISIS: A TEN-YEAR REVIEW

November 8-9, 2018

ANNUAL REVIEWS

MIT GCFP | GOLUB CENTER FOR FINANCE AND POLICY

NYU | STERN

Livestream access provided by CFA Institute Research Foundation

Jenni Rankin

Journals A-Z

- Analytical Chemistry
- Animal Biosciences
- Anthropology
- Astronomy and Astrophysics
- Biochemistry
- Biomedical Data Science (new in 2018)
- Biomedical Engineering
- Biophysics
- Cancer Biology
- Cell and Developmental Biology
- Chemical and Biomolecular Engineering
- Clinical Psychology
- Computer Science
- Condensed Matter Physics
- Control, Robotics, and Autonomous Systems (new in 2018)
- Criminology (new in 2018)
- Earth and Planetary Sciences
- Ecology, Evolution, and Systematics
- Economics
- Entomology
- Environment and Resources
- Financial Economics
- Fluid Mechanics
- Food Science and Technology
- Genetics
- Genomics and Human Genetics
- Immunology
- Law and Social Science
- Linguistics
- Marine Science
- Materials Research
- Medicine
- Microbiology
- Neuroscience
- Nuclear and Particle Science
- Nutrition
- Organizational Psychology and Organizational Behavior
- Pathology: Mechanisms of Disease
- Pharmacology and Toxicology
- Physical Chemistry
- Physiology
- Phytopathology
- Plant Biology
- Political Science
- Psychology
- Public Health
- Resource Economics
- Sociology
- Statistics and Its Application
- Virology
- Vision Science

Editorial Board Members

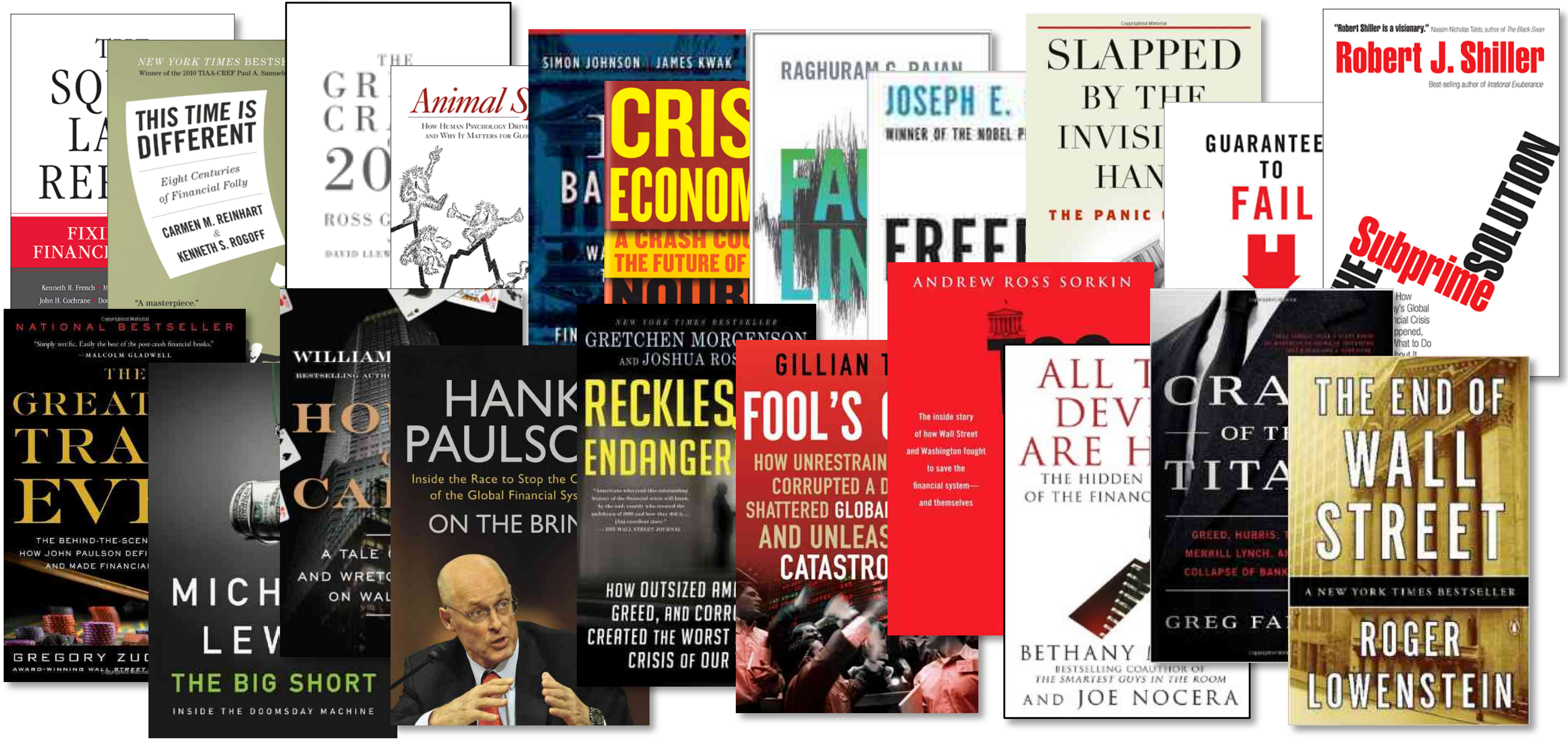
- Tobias Adrian, IMF
- Yacine Aït-Sahalia, Princeton
- Patrick Bolton, Columbia
- Robert Jarrow, Cornell
- Li Jin, Peking University
- Kose John, NYU
- Debra Lucas, MIT
- Matthew Richardson, NYU,
- Anoinette Schoar, MIT

Annual Reviews Staff

- **Sam Gubins**, former president and editor-in-chief
- **Richard Gallagher**, current president and editor-in-chief
- **Liz Allen,** Director MarCom & Strategic Development
- **Paul Calvi,** Director of Technology
- **Eva Emerson,** Senior Editor, Magazine
- **Jennifer Jongsma,** Associate Editor-in-Chief & Director of Production
- **Cathy Kirkman,** Corporate Secretary and Executive Assistant
- **Andrea Lopez,** Director of Sales
- **Jonathan Michael,** Chief Financial Officer
- **Kamran Naim,** Director of Partnerships and Initiatives
- **Lisa Wucher,** Director of Human Resources

Volume 1, 2009

The Many Narratives of the Crisis



The Many Narratives of the Crisis

Journal of Economic Literature 2012, 50:1, 151–178
http:www.aeaweb.org/articles.php?doi=10.1257/jel.50.1.151

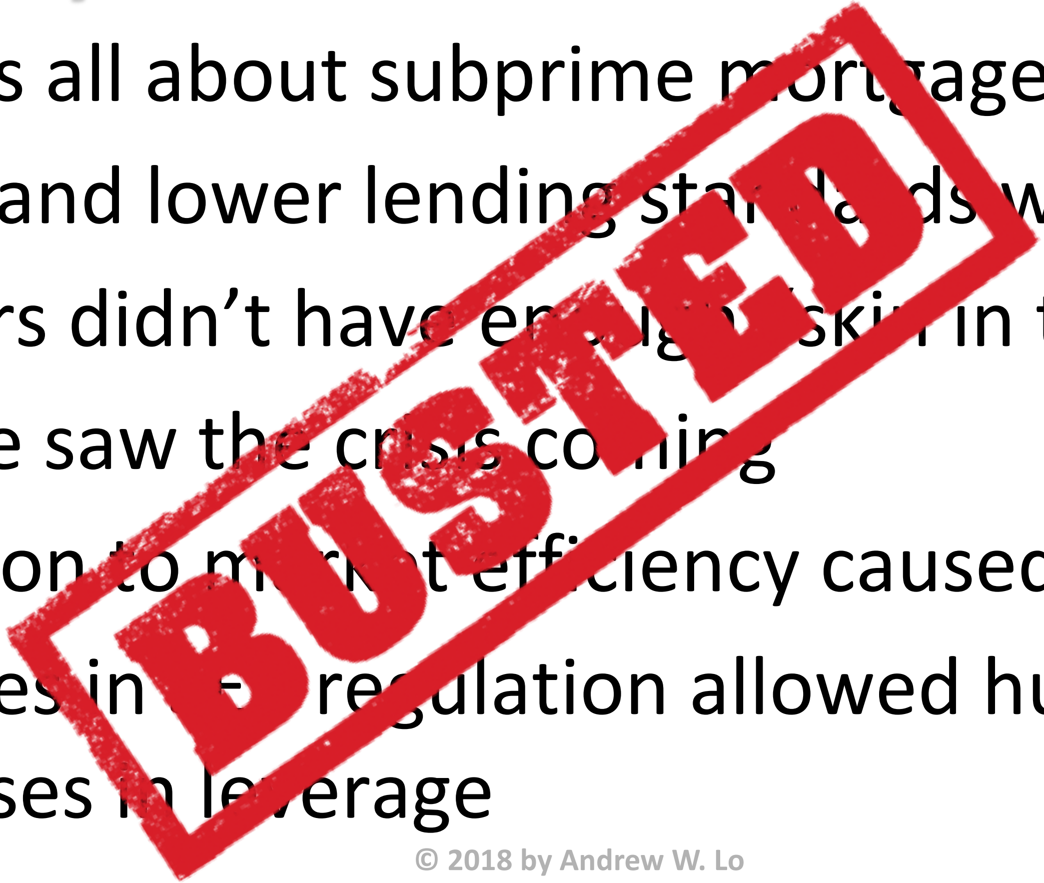
Reading About the Financial Crisis: A Twenty-One-Book Review

Andrew W. Lo*

The recent financial crisis has generated many distinct perspectives from various quarters. In this article, I review a diverse set of twenty-one books on the crisis, eleven written by academics, and ten written by journalists and one former Treasury Secretary. No single narrative emerges from this broad and often contradictory collection of interpretations, but the sheer variety of conclusions is informative, and underscores the desperate need for the economics profession to establish a single set of facts from which more accurate inferences and narratives can be constructed. (*JEL* E32, E44, E52, G01, G21, G28)

The Many Narratives of the Crisis

- Crisis is all about subprime mortgage lending
- Policy and lower lending standards were at fault
- Bankers didn't have enough "skin in the game"
- No one saw the crisis coming
- Devotion to market efficiency caused the crisis
- Changes in the regulation allowed huge increases in leverage



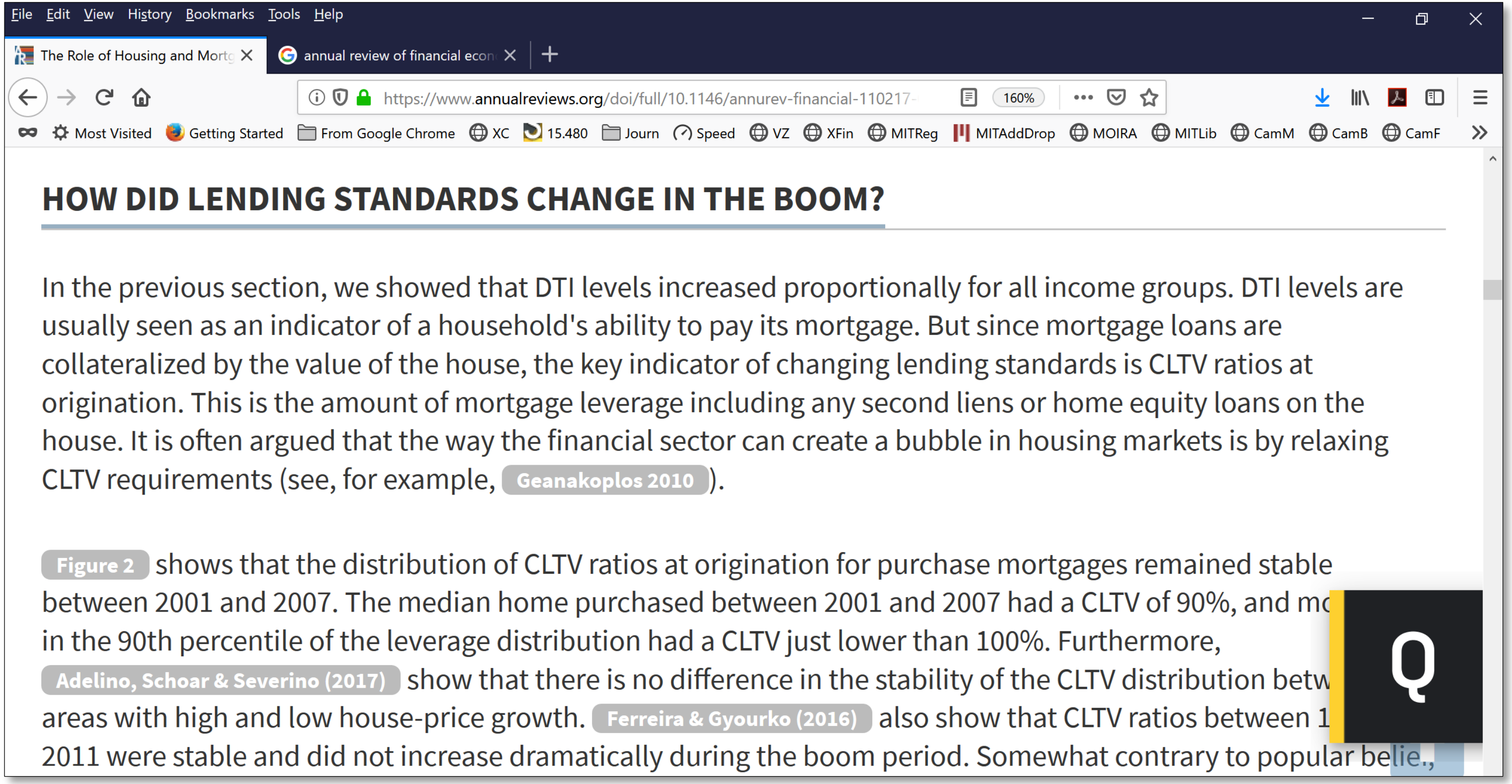
The Role of Housing and Mortgage Markets in the Financial Crisis

Annual Review of Financial Economics
Vol. 10:25-41 (Volume publication date November 2018)
https://doi.org/10.1146/annurev-financial-110217-023036

Manuel Adelino,[1,2] Antoinette Schoar,[2,3] and Felipe Severino[4]
[1]Fuqua School of Business, Duke University, Durham, North Carolina 27708, USA
[2]National Bureau of Economic Research, Cambridge, Massachusetts 02138, USA
[3]Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts 02142, USA; email: aschoar@mit.edu
[4]Tuck School of Business, Dartmouth College, Hanover, New Hampshire 03755, USA

WIDESPREAD INCREASES IN MORTGAGE LEVERAGE

The significant increase in mortgage and other household debt in the period leading up to the 2008 crisis has been widely documented. Brown et al. (2010) show that household mortgage debt almost doubled between 2000 and 2007, and contrary to earlier periods, increases in mortgage debt were not offset by reductions in other household debt. Remarkably, in the run-up to the crisis, this increase in leverage was prevalent across all income groups and was closely tied to house-price appreciation across neighborhoods. Adelino, Schoar & Severino (2016) document that the increase in household leverage, measured as DTI levels, went up across all income groups and all credit scores. Figure 1 shows the increase in mortgage credit during the period 2001–2007 and demonstrates that the flow of new (purchase) mortgages across incomes was stable over this period. Adelino, Schoar & Severino (2016) also document similar patterns across the credit score distribution. In other words, the fraction of credit going middle- and high-income households did not change over the period 2001–2007. But since richer househ higher credit scores take out larger mortgages, the dollar value of mortgage credit held by middle-class ar middle-class borrowers increased significantly over this time period. Adelino, Schoar & Severino (2017) also sh the increase in DTI ratios was almost twice as high in states with high house-price appreciation compared to thos with low appreciation



HOW DID LENDING STANDARDS CHANGE IN THE BOOM?

In the previous section, we showed that DTI levels increased proportionally for all income groups. DTI levels are usually seen as an indicator of a household's ability to pay its mortgage. But since mortgage loans are collateralized by the value of the house, the key indicator of changing lending standards is CLTV ratios at origination. This is the amount of mortgage leverage including any second liens or home equity loans on the house. It is often argued that the way the financial sector can create a bubble in housing markets is by relaxing CLTV requirements (see, for example, Geanakoplos 2010).

Figure 2 shows that the distribution of CLTV ratios at origination for purchase mortgages remained stable between 2001 and 2007. The median home purchased between 2001 and 2007 had a CLTV of 90%, and mo in the 90th percentile of the leverage distribution had a CLTV just lower than 100%. Furthermore, Adelino, Schoar & Severino (2017) show that there is no difference in the stability of the CLTV distribution betw areas with high and low house-price growth. Ferreira & Gyourko (2016) also show that CLTV ratios between 1 2011 were stable and did not increase dramatically during the boom period. Somewhat contrary to popular belie.,

NO EXPANSION OF HOMEOWNERSHIP

Several researchers have explicitly asked if an erosion of credit standards happened at the extensive margin. In other words, did distortions in credit origination allow households with low income and poor credit quality, who previously were rationed out of the market, to become homeowners (see Mian & Sufi 2015)? Goodman & Mayer (2018) present evidence that runs counter to this hypothesis. Using data from the American Housing Survey, they show that the overall US homeownership rate rose from 63.5% in 1985 to 68.8% in 2005. However, most of the increase was concentrated in the period before 2000, that is, before the onset of the mortgage expansion. It then dropped to 62.7% after the onset of the financial crisis.

But aggregate homeownership rates might mask important changes in the composition of borrowers if th significant expansion of credit to marginal households. Adelino, Schoar & Severino (2017) test this idea by com changes in homeownership rates for high- versus low-income households across regions. Figure 3 shows housing boom made homeownership less accessible for the lowest-income households. In particular, star 2001, low-income households entered homeownership at lower rates than middle- and high-income households, sold within the past 12 months. These statistics indicate that this measure of flipping or churn increased during the boom and increased most

Tab
Per

CLICK TO VIEW

Chinco & Mayer (2015) provide e
Demand from out-of-town sec
They argue that out-of-town i
consuming smaller dividends
investors in the housing mark

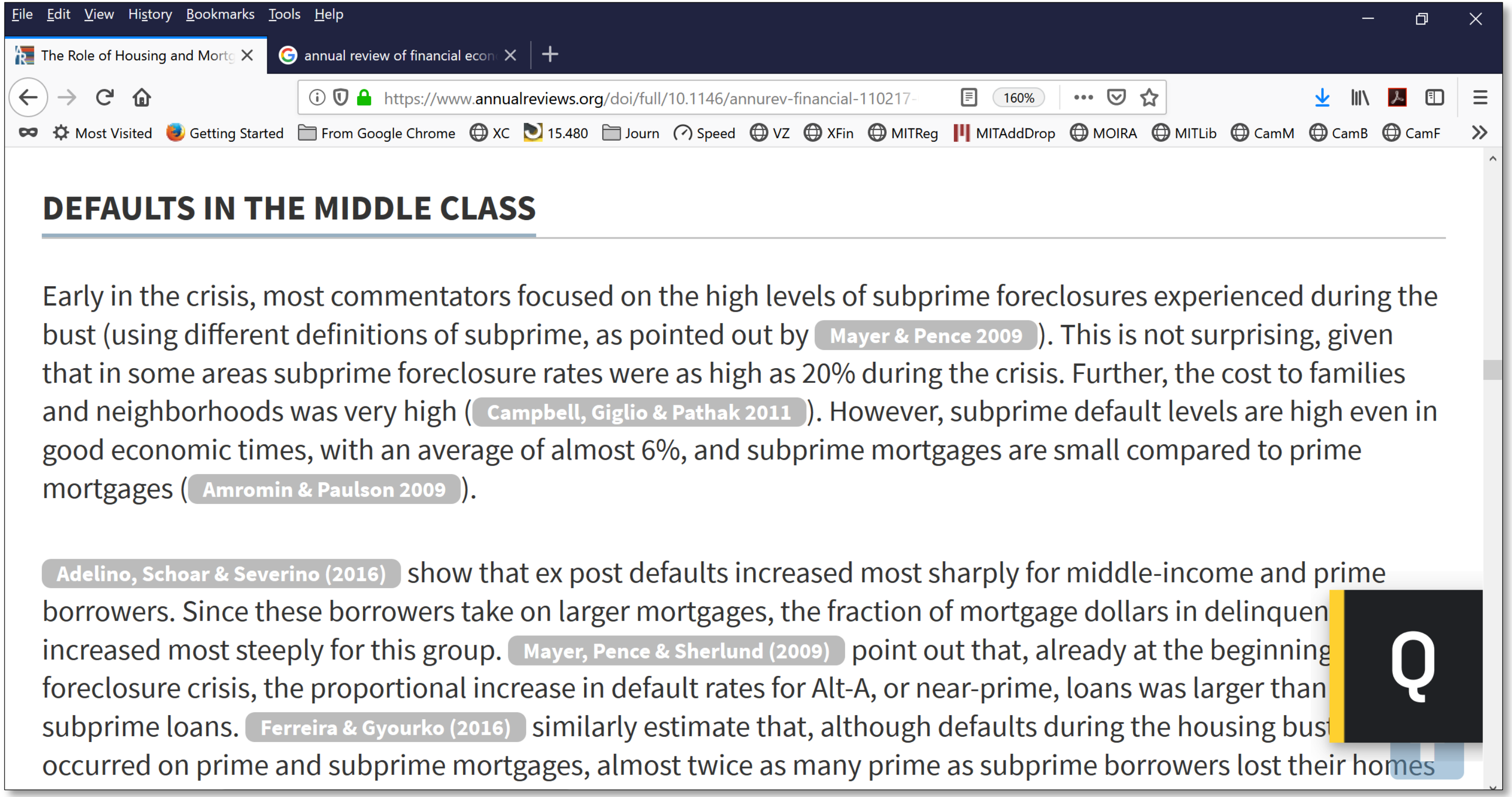
Figures Tables CLOSE

1 of 1

Table 1 Percentage of houses sold that were also previously sold in the past 12 months

	Percentage of houses sold that were also previously sold in past 12 months, grouped by house-price growth quartile				
Year	First quartile	Second quartile	Third quartile	Fourth quartile	Increase from first quartile to fourth quartile
2000	5.2	4.9	5.2	5.9	0.7
2001	5.3	4.9	5.2	6.1	0.8
2002	5.7	5.3	5.6	6.6	0.9
2003	6.1	5.7	5.9	7.0	0.9

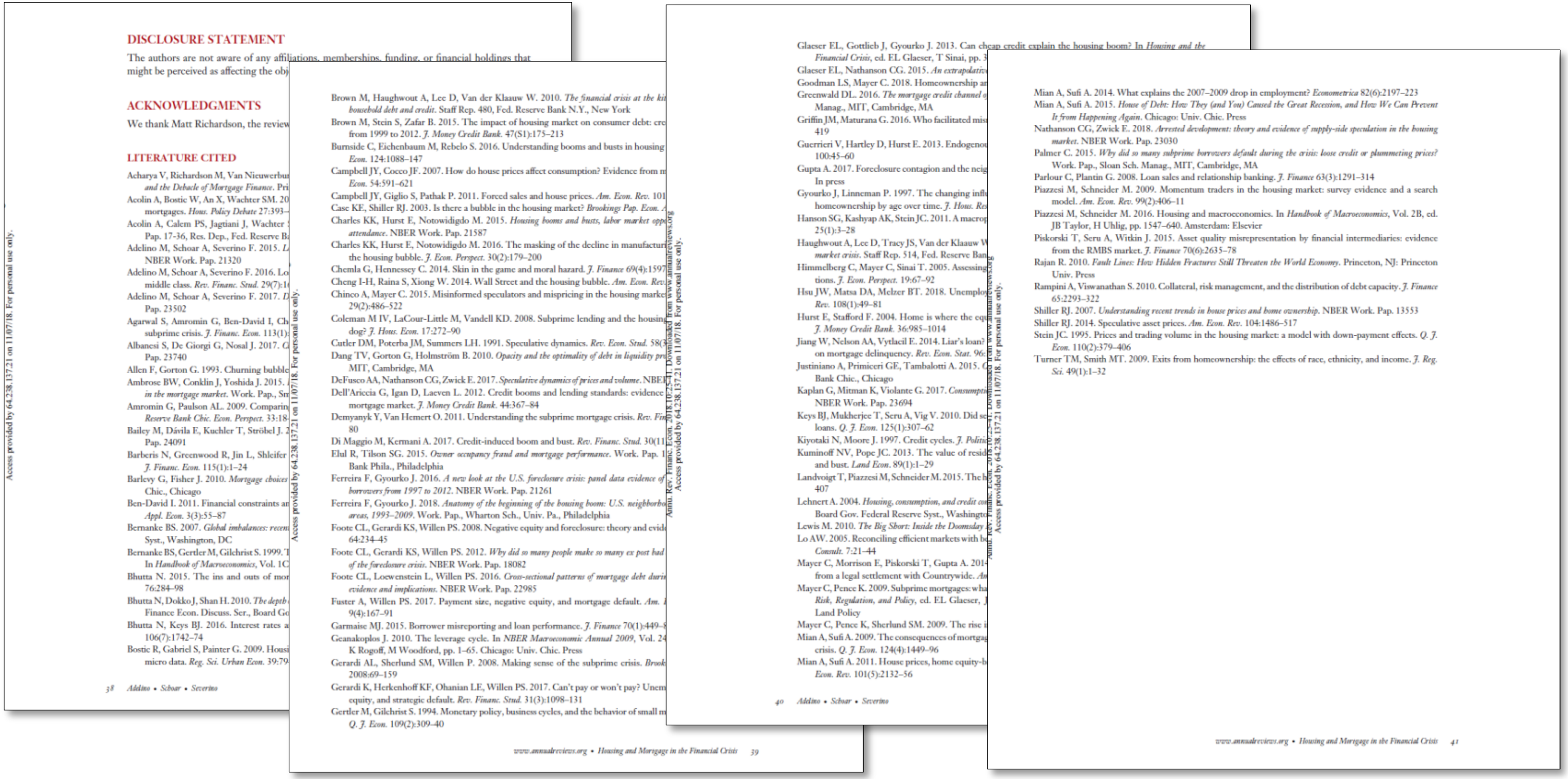
Q



DEFAULTS IN THE MIDDLE CLASS

Early in the crisis, most commentators focused on the high levels of subprime foreclosures experienced during the bust (using different definitions of subprime, as pointed out by Mayer & Pence 2009). This is not surprising, given that in some areas subprime foreclosure rates were as high as 20% during the crisis. Further, the cost to families and neighborhoods was very high (Campbell, Giglio & Pathak 2011). However, subprime default levels are high even in good economic times, with an average of almost 6%, and subprime mortgages are small compared to prime mortgages (Amromin & Paulson 2009).

Adelino, Schoar & Severino (2016) show that ex post defaults increased most sharply for middle-income and prime borrowers. Since these borrowers take on larger mortgages, the fraction of mortgage dollars in delinquen increased most steeply for this group. Mayer, Pence & Sherlund (2009) point out that, already at the beginning foreclosure crisis, the proportional increase in default rates for Alt-A, or near-prime, loans was larger than subprime loans. Ferreira & Gyourko (2016) similarly estimate that, although defaults during the housing bust occurred on prime and subprime mortgages, almost twice as many prime as subprime borrowers lost their homes


DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the obj

ACKNOWLEDGMENTS

We thank Matt Richardson, the review

LITERATURE CITED

Brown M, Haughwout A, Lee D, Van der Klaauw W. 2010. *The financial crisis at the ki household debt and credit*. Staff Rep. 480, Fed. Reserve Bank N.Y., New York

Brown M, Stein S, Zafar B. 2015. The impact of housing market on consumer debt: cre from 1999 to 2012. *J. Money Credit Bank.* 47(S1):175–213

Burnside C, Eichenbaum M, Rebelo S. 2016. Understanding booms and busts in housing *Econ.* 124:1088–147

Campbell JY, Cocco JF. 2007. How do house prices affect consumption? Evidence from m *Econ.* 54:591–621

Campbell JY, Giglio S, Pathak P. 2011. Forced sales and house prices. *Am. Econ. Rev.* 101

Case KE, Shiller RJ. 2003. Is there a bubble in the housing market? *Brookings Pap. Econ. A*

Charles KK, Hurst E, Notowidigdo M. 2015. *Housing booms and busts, labor market opp attendance*. NBER Work. Pap. 21587

Charles KK, Hurst E, Notowidigdo M. 2016. The masking of the decline in manufacturi the housing bubble. *J. Econ. Perspect.* 30(2):179–200

Chemla G, Hennessey C. 2014. Skin in the game and moral hazard. *J. Finance* 69(4):1597

Cheng I-H, Raina S, Xiong W. 2014. Wall Street and the housing bubble. *Am. Econ. Rev.*

Chinco A, Mayer C. 2015. Misinformed speculators and mispricing in the housing marke 29(2):486–522

Coleman M IV, LaCour-Little M, Vandell KD. 2008. Subprime lending and the housing dog? *J. Hous. Econ.* 17:272–90

Cutler DM, Poterba JM, Summers LH. 1991. Speculative dynamics. *Rev. Econ. Stud.* 58(3

Dang TV, Gorton G, Holmström B. 2010. *Opacity and the optimality of debt in liquidity pr* MIT, Cambridge, MA

DeFusco AA, Nathanson CG, Zwick E. 2017. *Speculative dynamics of prices and volume*. NBER

Dell'Ariccia G, Igan D, Laeven L. 2012. Credit booms and lending standards: evidence mortgage market. *J. Money Credit Bank.* 44:367–84

Demyanyk Y, Van Hemert O. 2011. Understanding the subprime mortgage crisis. *Rev. Fin* 80

Di Maggio M, Kermani A. 2017. Credit-induced boom and bust. *Rev. Financ. Stud.* 30(11

Elul R, Tilson SG. 2015. *Owner occupancy fraud and mortgage performance*. Work. Pap. 1 Bank Phila., Philadelphia

Ferreira F, Gyourko J. 2016. *A new look at the U.S. foreclosure crisis: panel data evidence of borrowers from 1997 to 2012*. NBER Work. Pap. 21261

Ferreira F, Gyourko J. 2018. *Anatomy of the beginning of the housing boom: U.S. neighborho areas, 1993–2009*. Work. Pap., Wharton Sch., Univ. Pa., Philadelphia

Foote CL, Gerardi KS, Willen PS. 2008. Negative equity and foreclosure: theory and evid 64:234–45

Foote CL, Gerardi KS, Willen PS. 2012. *Why did so many people make so many ex post bad of the foreclosure crisis*. NBER Work. Pap. 18082

Foote CL, Loewenstein L, Willen PS. 2016. *Cross-sectional patterns of mortgage debt durin evidence and implications*. NBER Work. Pap. 22985

Fuster A, Willen PS. 2017. Payment size, negative equity, and mortgage default. *Am.* 9(4):167–91

Garmaise MJ. 2015. Borrower misreporting and loan performance. *J. Finance* 70(1):449–8

Geanakoplos J. 2010. The leverage cycle. In *NBER Macroeconomic Annual 2009*, Vol. 24 K Rogoff, M Woodford, pp. 1–65. Chicago: Univ. Chic. Press

Gerardi AL, Sherlund SM, Willen P. 2008. Making sense of the subprime crisis. *Brook* 2008:69–159

Gerardi K, Herkenhoff KF, Ohanian LE, Willen PS. 2017. Can't pay or won't pay? Unem equity, and strategic default. *Rev. Financ. Stud.* 31(3):1098–131

Gertler M, Gilchrist S. 1994. Monetary policy, business cycles, and the behavior of small m *Q. J. Econ.* 109(2):309–40

www.annualreviews.org • Housing and Mortgages in the Financial Crisis 39

Glaeser EL, Gottlieb J, Gyourko J. 2013. Can cheap credit explain the housing boom? In *Housing and the Financial Crisis*, ed. EL Glaeser, T Sinai, pp. 3

Mian A, Sufi A. 2014. What explains the 2007–2009 drop in employment? *Econometrica* 82(6):2197–223

Mian A, Sufi A. 2015. *House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again*. Chicago: Univ. Chic. Press

Nathanson CG, Zwick E. 2018. *Arrested development: theory and evidence of supply-side speculation in the housing market*. NBER Work. Pap. 23030

Palmer C. 2015. *Why did so many subprime borrowers default during the crisis: loose credit or plummeting prices?* Work. Pap., Sloan Sch. Manag., MIT, Cambridge, MA

Parlour C, Plantin G. 2008. Loan sales and relationship banking. *J. Finance* 63(3):1291–314

Piazzesi M, Schneider M. 2009. Momentum traders in the housing market: survey evidence and a search model. *Am. Econ. Rev.* 99(2):406–11

Piazzesi M, Schneider M. 2016. Housing and macroeconomics. In *Handbook of Macroeconomics*, Vol. 2B, ed. JB Taylor, H Uhlig, pp. 1547–640. Amsterdam: Elsevier

Piskorski T, Seru A, Witkin J. 2015. Asset quality misrepresentation by financial intermediaries: evidence from the RMBS market. *J. Finance* 70(6):2635–78

Rajan R. 2010. *Fault Lines: How Hidden Fractures Still Threaten the World Economy*. Princeton, NJ: Princeton Univ. Press

Rampini A, Viswanathan S. 2010. Collateral, risk management, and the distribution of debt capacity. *J. Finance* 65:2293–322

Shiller RJ. 2007. *Understanding recent trends in house prices and home ownership*. NBER Work. Pap. 13553

Shiller RJ. 2014. Speculative asset prices. *Am. Econ. Rev.* 104:1486–517

Stein JC. 1995. Prices and trading volume in the housing market: a model with down-payment effects. *Q. J. Econ.* 110(2):379–406

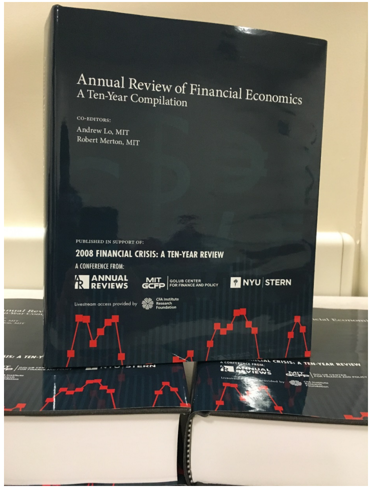
Turner TM, Smith MT. 2009. Exits from homeownership: the effects of race, ethnicity, and income. *J. Reg. Sci.* 49(1):1–32

www.annualreviews.org • Housing and Mortgages in the Financial Crisis 41

Volume 10, 2018

2008 Financial Crisis: A Ten-Year Review

Other Articles of Current Interest



Thank You!