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### Bank Regulation and Securitization: How the Law Improved Transmission Lines Between Real Estate and Banking Crises

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*RISK MANAGEMENT AND REGULATORY  
OVERSIGHT*

**BANK REGULATION AND SECURITIZATION:  
HOW THE LAW IMPROVED TRANSMISSION  
LINES BETWEEN REAL ESTATE AND  
BANKING CRISES**

*Erik F. Gerding\**

TABLE OF CONTENTS

I.	INTRODUCTION .....	91
II.	THE RISKS OF REAL ESTATE INVESTMENTS AND SECURITIZATION'S SOLUTION .....	95
III.	LOOSENING LEGAL RESTRICTIONS ON BANK PARTICIPATION IN MORTGAGE-BACKED SECURITIES MARKETS .....	99
	A. BANK INVESTMENTS—MORTGAGE-BACKED SECURITIES .....	100
	B. PERMITTING BANKS TO ISSUE AND DEAL IN MORTGAGE-BACKED SECURITIES .....	104
	C. POTENTIAL SUBSIDY TRANSFERS FROM BANKS TO NON-BANK MORTGAGE AFFILIATES .....	105
	D. CAPITAL REGULATIONS .....	106
IV.	CORRELATIONS: MISPRICING MORTGAGE-BACKED SECURITIES .....	108
	A. THE INADEQUACIES OF DIVERSIFICATION .....	109

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\* Professor and Associate Dean for Academic Affairs, University of Colorado Law School. I thank Franklin Allen, Adam Levitin, Patricia McCoy, and David Min and participants in the Hamline University School of Law Symposium on "Reforming the Secondary Mortgage Markets" for their advice and comments.

B.	THE CREATION OF A NATIONAL MORTGAGE MARKET AND AN “UNTHINKABLE” NATIONWIDE REAL ESTATE BUST: SECURITIZATION AND FINANCIAL CONSOLIDATION .....	110
1.	<i>Securitization and the Spread of Risky Mortgage Underwriting</i> .....	111
2.	<i>Financial Industry Consolidation and Regulatory Change</i> .....	114
C.	WAREHOUSE AND RECOURSE RISK FOR ORIGINATING BANKS .....	116
V.	IT’S NOT JUST RISK, IT’S CYCLICALITY .....	117
A.	POSITIVE SERIAL CORRELATION OF REAL ESTATE PRICES .....	117
B.	CORRELATIONS AND LINKAGES BETWEEN REAL ESTATE AND BANK CRISES .....	118
1.	<i>Historical Data</i> .....	118
2.	<i>Feedback Mechanisms</i> .....	119
C.	CYCLES IN BANK LEVERAGE .....	120
D.	CYCLES COUPLED: PERFECT STORMS .....	122
VI.	CONCLUSION: POLICY APPROACHES AND POLITICS .....	123
A.	CURBING BANK INVESTMENTS IN REAL ESTATE AND REAL ESTATE SECURITIES MARKETS .....	124
B.	REGULATING THE TYPES OF MORTGAGES IN WHICH BANKS CAN INVEST .....	125
C.	COUNTERCYCLICAL RULES .....	127

## I. INTRODUCTION

Financial crises take many forms. Real estate crises can devastate economies.<sup>1</sup> So too can bank crises.<sup>2</sup> Stock market crashes can precipitate crises of their own.<sup>3</sup> The “subprime crisis” represents the confluence and worst of all three; like three cyclones merging together in warm offshore waters, these three kinds of crises generated even more destructive force when conjoined. The panic that took shape in U.S. real estate and capital markets in 2007 represents another example in a long historical line of intertwined banking and real estate crises.<sup>4</sup> Securitization served as a new coupling rod joining cycles in real estate and banking markets and creating a new pathway for contagion.

Scholars have scrutinized many aspects of the subprime crisis, including the proliferation of exotic mortgages and the failure of mortgage-backed securities markets.<sup>5</sup> Yet the role that bank regulation played in enabling and stoking bank investments in

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<sup>1</sup> See, e.g., John M. Quigley, *Real Estate and the Asian Crisis*, 10 J. HOUSING ECON. 129, 130 (2001) (arguing that real estate markets contributed significantly to the 1997 crises in Asian economies). Dwight M. Jaffee, *The Swedish Real Estate Crisis* (Oct. 1994) (unpublished manuscript), <http://faculty.haas.berkeley.edu/jaffee/Papers/Sweden.pdf> (examining the causes of the 1990 real estate crisis in Sweden).

<sup>2</sup> See, e.g., Asli Demirgüç-Kunt et al., *Inside the Crisis: An Empirical Analysis of Banking Systems in Distress* 6–10 (World Bank Policy Research, Paper No. 2431, 2000), available at <http://ssrn.com/abstract=237651> (reporting the effects of bank crises). See generally BANKING CRISES: CASES AND ISSUES (Vasudevan Sundararajan & J.T. Tomás Baliño eds., 1991) (describing what happens to a banking system after a crisis).

<sup>3</sup> See generally DIDIER SORNETTE, *WHY STOCK MARKETS CRASH: CRITICAL EVENTS IN COMPLEX FINANCIAL SYSTEMS* (2003) (providing insight into bank, real estate, and stock market crises). For an earlier article discussing common factors among different types of crises, and suggesting legal solutions to financial problems, see generally Frank Partnoy, *Why Markets Crash and What Law Can Do About It*, 61 U. PITT. L. REV. 741 (2000).

<sup>4</sup> See Richard Herring & Susan Wachter, *Bubbles in Real Estate Markets*, in ASSET PRICE BUBBLES: THE IMPLICATIONS FOR MONETARY, REGULATORY, AND INTERNATIONAL POLICIES 217, 217–27 (William C. Hunter et al. eds., 2003) (“[D]evelop[ing] an explanation of how real estate bubbles and banking crises may be related.”). For other empirical and theoretical studies of the correlation and causal links between real estate and banking crises, see *infra* Part V.

<sup>5</sup> See, e.g., KATHLEEN C. ENGEL & PATRICIA A. MCCOY, *THE SUBPRIME VIRUS: RECKLESS CREDIT, REGULATORY FAILURE, AND NEXT STEPS* 17–19, 33–35 (2011) (noting the contributions of securitization and non-traditional mortgages to the financial crisis).

mortgage-backed securities, and thus creating the transmission line between bank and real estate crises, remains under-explored.<sup>6</sup> Indeed, a series of incremental legislative and regulatory changes, which accelerated in the 1980s and 1990s, facilitated bank participation in the markets for mortgage-backed securities, as well as in asset-backed securities more generally.<sup>7</sup> Certain changes facilitated bank investments in mortgage-backed securities.<sup>8</sup> Other shifts in legal rules enabled and encouraged banks to securitize mortgage assets on their balance sheets and deal in the resulting securities.<sup>9</sup>

These changes significantly enlarged the exceptions to U.S. legal restrictions on bank investments both in real estate and securities. Curiously, many of these changes did not generate much debate, nor did they receive sufficient scholarly attention. Part of this neglect may be explained by the fact that securitization offered to address three of the historical concerns underlying bank restrictions on real estate investments: the credit, liquidity, and interest rate risk associated with real property investments.<sup>10</sup> The legal changes rested on a series of assumptions regarding the ability of securitization to mitigate the risks to banks inherent in mortgage lending and real estate investment—whether those banks securitized mortgages they originated or purchased mortgage-backed securities.<sup>11</sup> These assumptions proved ill-founded, as highly correlated losses on exotic mortgages during the crisis vaporized the value and

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<sup>6</sup> My focus in this Article is on regulations and laws affecting entities chartered as banks, even though savings and loans were also major sources of residential real estate lending for several decades following the Second World War. Richard K. Green & Susan M. Wachter, *The American Mortgage in Historical and International Context*, 19 J. ECON. PERSP. 93, 97 (2005). These institutions faced the same credit, liquidity, and interest rate risks from residential real estate lending as do banks.

<sup>7</sup> See *infra* notes 50–52 and accompanying text.

<sup>8</sup> See *infra* notes 52–61 and accompanying text.

<sup>9</sup> See *infra* Part III.B.

<sup>10</sup> See *infra* Part II (explaining the risks faced by banks from real estate transactions and how securitization created attractive responses to those risks).

<sup>11</sup> See *infra* Part IV (noting the premises of these legal changes, which rested on assumptions regarding securitization of real estate instruments).

liquidity of mortgage-backed securities.<sup>12</sup> These correlated losses triggered a solvency and liquidity crisis for those banks that invested in these instruments.<sup>13</sup>

Changes in bank regulation not only permitted banks to take on these risks and fueled the growth of mortgage-backed securities; they also helped create a national market for real estate mortgages.<sup>14</sup> By fostering the growth of securitization and permitting massive financial industry consolidation, banking law contributed to the development of a nationwide (countrywide, if you prefer) market for mortgages.<sup>15</sup> In the period surrounding the turn of the twenty-first century, exotic and subprime mortgages came to enjoy a larger share of this newly national market.<sup>16</sup> Banking law changes, it seems, sowed the seeds for a nationwide real estate decline. These regulatory changes thus undermined a core assumption upon which they were premised, namely that such a widespread national decline in residential real estate prices was extremely unlikely.<sup>17</sup> Equally perversely, securitization was seen in the wake of the savings and loan crisis of the 1980s as a vehicle for banks to offload the credit, liquidity, and interest rate risk of mortgages and other loans.<sup>18</sup> Yet securitization ultimately became a system that concentrated these very risks and delivered them back to those banks (and other financial institutions) that purchased asset-backed securities.<sup>19</sup>

The history of regulations that permitted banks to participate in mortgage-backed securitization underscores a larger, recurrent dilemma beyond the current crisis: whether and how regulation of bank investments in real estate markets can weaken the potential

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<sup>12</sup> See *infra* notes 89–92 and accompanying text.

<sup>13</sup> See *infra* notes 89–92 and accompanying text.

<sup>14</sup> See *infra* Part IV.B.

<sup>15</sup> See *infra* Part IV.B.

<sup>16</sup> See Souphala Chomsisengphet & Anthony Pennington-Cross, *The Evolution of the Subprime Mortgage Market*, FED. RES. BANK OF ST. LOUIS REV., Jan.–Feb. 2006, at 36–40, <https://research.stlouisfed.org/publications/06/01/ChomPennCross.pdf> (commenting on the market share growth of subprime mortgages from 1995–2003).

<sup>17</sup> See *infra* note 98 and accompanying text.

<sup>18</sup> ENGEL & MCCOY, *supra* note 5, at 18.

<sup>19</sup> See *infra* Part IV.C (marking on how securitization risks eventually came full circle back to the originating mortgagors).

transmission lines between banking and real estate crises. The current crisis highlights the dangers that real estate can pose for the banking sector. It is not merely that real estate investments are more “risky” or illiquid, but, moreover, that they can generate feedback loops.<sup>20</sup> These feedback effects increase risk correlations and can produce dangerous real estate cycles. When real estate cycles become linked to banking cycles, the potential for economic crises metastasizes.

This Article proceeds as follows: Part II provides an overview of how securitization promised to help banks address the credit, liquidity, and interest rate risks associated with real estate investments. Securitization served the needs of banks that originated mortgage loans by offering them a means to exchange those loans for cash. These originating banks could thus transfer the credit and interest rate risk associated with these loans and convert illiquid assets into the most liquid asset of them all, cash. More importantly, securitization also helped reduce these risks for banks (and other financial institutions) that purchased mortgage-backed securities. Part II focuses, in particular, on this second dynamic of risk reduction for banks purchasing these instruments.

Parts III examines the history of legislative and regulatory changes that facilitated bank participation in the markets for mortgage-backed securities. Part IV explains how securitization failed to mitigate the credit, liquidity, and interest rate risk associated with real estate when losses in residential markets became correlated nationwide. Part IV also discusses how regulation contributed to this, as the spread of securitization and financial industry consolidation created a nationwide market for mortgages.

Part V telescopes out from securitization to discuss an often overlooked danger of bank investments in real estate: the cyclicity of real estate losses. This Part analyzes the evidence that real estate prices exhibit positive serial correlation. It also summarizes historical evidence of the correlation between banking and real estate crises. This Part then looks at feedback

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<sup>20</sup> See *infra* Part V.B.2.



mechanisms between banking and real estate markets, including new economic research into the existence of a bank leverage cycle.

Part VI provides a very high level outline of various approaches to decoupling bank and real estate crises and the advantages and drawbacks of various approaches. These approaches include curbing bank investments in real estate and mortgage-backed securities, using bank regulations as a more surgical tool to fix problems with securitization, and developing countercyclical approaches to regulations of mortgage markets and bank investments in them. Part VI concludes by discussing the political dynamics that will shape and constrain any of these policy approaches.

## II. THE RISKS OF REAL ESTATE INVESTMENTS AND SECURITIZATION'S SOLUTION

Restrictions on bank equity investments in real estate date to the early years of the republic and often reflected political concerns with land speculation and, as Professor Malloy explains, "the fear of large aggregations of economic power that banks' control of land naturally exacerbated in an agrarian society."<sup>21</sup> U.S. law has generally allowed bank lending secured by real estate, but placed tight prudential restrictions on this lending because of three dangers that real estate investments pose for the financial health of banks. First, real estate investments pose a high degree of credit risk.<sup>22</sup> Second, illiquid real estate investments can exacerbate the natural liquidity risk faced by banks.<sup>23</sup> Third, real estate lending poses interest rate risks, as a drop in interest rates could cause real estate borrowers to

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<sup>21</sup> MICHAEL P. MALLOY, *PRINCIPLES OF BANK REGULATION* § 5.20, at 193 (2d ed. 2003).

<sup>22</sup> The U.S. Supreme Court has explained that the risk inherent in real estate was one of the three reasons for legal restrictions (such as in 12 U.S.C. § 29) on national bank holdings of real property. The Court explained: "The object of the restrictions was obviously threefold. It was to keep the capital of the banks flowing in the daily channels of commerce; to deter them from embarking in hazardous real-estate speculations; and to prevent the accumulation of large masses of such property in their hands." *Union Nat'l Bank v. Matthews*, 98 U.S. 621, 626 (1878).

<sup>23</sup> See Christopher C. Faille, Book Review, *FED. LAWYER*, May 2008, at 68, 69 (describing the illiquid nature of real estate).

refinance. This leaves banks with the unpleasant prospect of redeploying their cash in a lower interest rate environment, while potentially paying higher interest rates to their own creditors.<sup>24</sup>

All these risks to banks pose larger social costs, as bank failures create potentially broad spillover effects for the broader economy as well. Securitization offered to address these three risks for banks that originated real estate loans. Again, banks could trade the credit, liquidity, and interest rate risk associated with mortgages by selling these assets in a securitization in exchange for cash.<sup>25</sup> However, by reducing the credit, liquidity, and interest rate risk associated with purchasing mortgage backed securities, securitization also promises to help banks on the other end of the securitization pipeline. To understand the promise of securitization, it is important to unpack further the credit, liquidity, and interest rate risk of real estate.

Banks or other institutions may face a more specialized form of credit risk called concentration risk, which arises when investments are made within the same geographic or market sector and thus subject to common shocks.<sup>26</sup> Returns and losses on mortgages in a given real estate market are necessarily correlated. Economist Martin Hellwig notes that mortgage returns and property values depend on both common and asset-specific factors.<sup>27</sup> Diversification allows lenders to mitigate the risk of losses from asset-specific factors, such as the qualities of particular neighborhoods.<sup>28</sup> They cannot, however, diversify away common factors that affect all properties and mortgages in a particular market, such as interest rate changes or other macroeconomic factors like the demise of a large industry.<sup>29</sup>

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<sup>24</sup> Sherrill Shaffer, *Interest Rate Risk: What's a Bank to Do?*, FED. RES. BANK OF PHILADELPHIA BUS. REV. 17 (May/June 1991).

<sup>25</sup> See Alan Kronovet, Note & Comment, *An Overview of Commercial Mortgage Backed Securitization: The Devil Is In the Details*, 1 N.C. BANKING INST. 288, 288–89 (1997) (describing securitization).

<sup>26</sup> FRANK J. FABOZZI, *BOND PORTFOLIO MANAGEMENT* 491 (2d ed. 2001).

<sup>27</sup> Martin F. Hellwig, *Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis*, 157 DE ECONOMIST 129, 145 (2009).

<sup>28</sup> *Id.*

<sup>29</sup> *Id.* Losses on one mortgage may trigger losses on others in the same market. Declines in the price of home sales, or even foreclosures, tend to lower property values in the same

Several features of securitization offered to reduce the credit and concentration risk of mortgage investments. These features include:

- the pooling of assets (such as mortgages) that back the securities;<sup>30</sup>
- the structuring (or tranching) of asset-backed securities, which gives senior-securities priority of claims to the cash streams from underlying assets;<sup>31</sup>
- financial guarantees and other credit enhancements provided by financial institutions (including by government-sponsored entities (GSEs) like Fannie Mae and Freddie Mac);<sup>32</sup> and
- credit rating agencies providing assessments of the credit risk of asset-backed securities (and thus acting as gatekeepers).<sup>33</sup>

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neighborhood. Todd J. Zywicki & Joseph D. Adamson, *The Law and Economics of Subprime Lending*, 80 U. COLO. L. REV. 1, 10–11 (2009). Lower property values can put more borrowers “under water” and induce them to walk away from their properties and default on their mortgages. *But cf.* Brent T. White, *Underwater and Not Walking Away: Shame, Fear, and the Social Management of the Housing Crisis*, 45 WAKE FOREST L. REV. 971 (2010) (arguing that emotional factors and social pressures have prevented underwater homeowners from making the rational economic decision of defaulting on mortgages). A glut of houses on the market, whether from new construction or foreclosures, could also further depresses prices.

<sup>30</sup> Erik F. Gerding, *Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis*, 84 WASH. L. REV. 127, 147–49 (2009) (explaining how pooling of assets in a securitization furthers diversification and, ultimately, risk-spreading).

<sup>31</sup> For an explanation of tranching in a securitization, see Steven P. Baum, *The Securitization of Commercial Property Debt*, in A PRIMER ON SECURITIZATION 45, 49 (Leon T. Kendall & Michael J. Fishman eds., 1996).

<sup>32</sup> Frank J. Fabozzi & Vinod Kothari, *Securitization: The Tool of Financial Transformation* (Yale Int’l Ctr. for Fin., Working Paper No. 07-07, 2007), available at <http://ssrn.com/abstract=997079>.

<sup>33</sup> Frank Partnoy, *The Siskel and Ebert of Financial Markets?: Two Thumbs Down for the Credit Rating Agencies*, 77 WASH. U. L.Q. 619, 664–68 (1999) (describing the crucial role of rating agencies in various securitization transactions).

Restrictions on real estate investments by banks are also based on a second concern, namely the illiquid nature of this asset class.<sup>34</sup> Illiquid assets pose severe risks for banks. A bank's asset-liability mismatch (i.e., the fact that it holds long term assets but has short term liabilities, such as demand deposits) makes it susceptible to bank runs.<sup>35</sup> Securitization addresses this liquidity risk for banks in two ways. First, when banks securitize mortgages off their own balance sheets, they exchange assets with long-term maturities for the most liquid asset of all—cash.<sup>36</sup> Second, securitization transforms the cash streams from mortgages and other assets into theoretically liquid securities for banks, which can be bought and sold in capital markets.<sup>37</sup>

Interest rate risk also poses thorny problems for banks, which securitization can help solve. As noted above, when interest rates on mortgages and other loans drop, borrowers will seek to refinance their loans. Although this means loans will be repaid, it leaves lenders with prepayment risk, or the unwelcome prospect of reinvesting the proceeds in a lower interest rate environment. In addition, banks may face a sudden interest rate mismatch in which they receive lower payouts on the asset side of their balance sheet while continuing to owe their creditors fixed interest rates. Securitization can help banks that originate mortgages with this risk. By selling mortgages into a securitization, banks reduce the "asset duration," i.e., the average length of time they hold assets, and thus shorten the window in which they are subject to interest

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<sup>34</sup> MALLOY, *supra* note 21, § 5.20, at 193–94 (describing the liquidity problems with real estate).

<sup>35</sup> For the classic economic model of a bank run, see generally Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983).

<sup>36</sup> ZOLTAN POZSAR ET AL., FED. RESERVE BANK OF N.Y., STAFF REPORT NO. 458, SHADOW BANKING 15 (2010), <http://ssrn.com/abstract=1640545> (describing how securitization helps lenders address asset-liability mismatch).

<sup>37</sup> See Leon T. Kendall, *Securitization: A New Era in American Finance*, in A PRIMER ON SECURITIZATION, *supra* note 31, at 1, 13–15 (“[S]ecuritization’s major contribution has been to convert nonrated, relatively illiquid loans into rated, highly liquid, tradable securities at attractive market prices.”); Gerding, *supra* note 30, at 149 (explaining how securitization of asset-backed securities can be structured).

rate risk. Of course, securitization transactions merely pass on interest rate risk to investors in asset-backed securities.<sup>38</sup>

This is where adjustable rate mortgages can help. Adjustable rate mortgages (ARMs), which Title VIII of the Garn-St. Germain Depository Institutions Act of 1982 allowed banks to make,<sup>39</sup> reset according to market rates. When packaged in a securitization, these mortgages ensure that investors will not suffer a drop in yield should market rates rise. However, interest rate risk can be a zero sum game; adjustable rate mortgages reallocated interest rate risks back to borrowers.<sup>40</sup> As we will see, however, borrowers may not have been able to bear this interest rate risk when interest rates on ARMs reset.

As we will see in Part III, these structural features of securitization failed to offer durable solutions to the problems of credit, liquidity, and interest rate risk in real estate investments.

### III. LOOSENING LEGAL RESTRICTIONS ON BANK PARTICIPATION IN MORTGAGE-BACKED SECURITIES MARKETS

The promise of securitization to address credit, liquidity, and interest rate risk of mortgages provided justification for a series of statutory and regulatory changes that allowed banks to participate in mortgage-backed securities markets. Before outlining these changes, it helps to understand the general context of federal restrictions on bank investments. The concerns of credit, liquidity, and interest rate risk animated the historical restrictions in U.S. banking law on the ability of banks to (1) make real estate loans or purchase real estate-related securities, or (2) underwrite or deal in mortgage-related securities.<sup>41</sup> These two types of legal restrictions

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<sup>38</sup> Shaffer, *supra* note 24, at 23–24.

<sup>39</sup> Deposit Insurance Flexibility Act, Pub. L. No. 97-320, 96 Stat. 1469 (1982).

<sup>40</sup> Emanuel Moench, James Vickery & Diego Aragon, *Why Is the Market Share of Adjustable Rate Mortgages So Low?*, 16 FED. RES. BANK N.Y. CURRENT ISSUES IN ECON. & FIN. 1 (Dec. 2010), available at [https://www.newyorkfed.org/medialibrary/media/research/current\\_issues/ci16-8.pdf](https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci16-8.pdf) (examining supply and demand factors, including securitization, for ARMs).

<sup>41</sup> See MALLOY, *supra* note 21, § 5.20, at 193 (noting historical legal limitations on banks when dealing with real property).

and the relaxation of these restrictions, which accelerated in the late 1970s and onwards, are surveyed below.

#### A. BANK INVESTMENTS—MORTGAGE-BACKED SECURITIES

The National Bank Act prohibits national banks from purchasing, holding, and conveying real estate with four major exceptions.<sup>42</sup> One of these exceptions allows banks to acquire real property through foreclosing on security interests on bank loans.<sup>43</sup> Moreover, federal law permits national banks to make loans secured by real property.<sup>44</sup>

Federal law also contains general restrictions on the ability of national banks to invest in mortgage-related securities. The principal statutory restriction on bank investments in securities is found in 12 U.S.C. § 24 (Seventh).<sup>45</sup> The laundry list of permissible investments in 12 U.S.C. § 24 (Seventh) may be unified less by assets that are inherently safer and more liquid, and more by various social and political objectives of Congress, including an interest in channeling capital to particular

<sup>42</sup> The four exceptions allow banks to:

- (1) Acquire and hold real estate “necessary for its accommodation in the transaction of its business”;
- (2) Take mortgages on real property to secure “debts previously contracted”;
- (3) Hold real estate acquired “in satisfaction of debts previously contracted in the course of its dealings”; and
- (4) Hold real estate acquired by foreclosing on a debt.

12 U.S.C. § 29 (2012) (First–Fourth).

A later statute expanded national bank powers to allow them to hold real property to “make investments . . . designed primarily to promote the public welfare, including the welfare of low- and moderate-income communities or families (such as by providing housing, services, or jobs).” 12 U.S.C. § 24 (2012) (Eleventh). *See also* RICHARD SCOTT CARNELL, JONATHAN R. MACEY & GEOFFREY P. MILLER, *THE LAW OF BANKING AND FINANCIAL INSTITUTIONS* 127–28 (4th ed. 2009) (explaining that these same restrictions apply to FDIC-insured banks and similar restrictions apply to FDIC-insured thrifts).

<sup>43</sup> CARNELL, MACEY & MILLER, *supra* note 42, at 127.

<sup>44</sup> 12 U.S.C. § 371(a) (2012). Banks can engage in real estate lending themselves or through operating subsidiaries. MICHAEL P. MALLOY, *PRINCIPLES OF BANK REGULATION* § 5.4, at 171 (3d ed. 2011) (citing *Watters v. Wachovia Bank, N.A.*, 550 U.S. 1, 6 (2007)).

<sup>45</sup> 12 U.S.C. § 24.

institutions, markets, and classes of borrowers.<sup>46</sup> One prominent permissible investment category is “investment securities”; the statute subjects these bank investments to regulations of the Office of the Comptroller of the Currency (OCC).<sup>47</sup>

Statutory changes over a period of decades enabled banks to purchase various financial instruments, including mortgage-backed securities. Some of these changes occurred before the mortgage-backed securities market took off in the early 1980s. For example, each time Congress created a government-sponsored entity that would eventually sponsor mortgage-backed securities—Fannie Mae in 1938, GNMA in 1968, and Freddie Mac in 1970—it soon amended 12 U.S.C. § 24 (Seventh) to allow national banks to purchase the entity’s securities.<sup>48</sup> The securities of these

<sup>46</sup> See generally Anna Gelpert & Erik F. Gerding, *Safe Assets* (Sept. 2, 2015) (unpublished manuscript) (on file with author) (discussing how regulations of bank balance sheets reflect political and policy choices to channel credit to certain borrowers).

<sup>47</sup> 12 U.S.C. § 24 (Seventh).

<sup>48</sup> In 1938, Congress created the National Mortgage Association of Washington, the predecessor of GNMA and Fannie Mae, as a wholly owned corporate instrument of the federal government. *Records of the Federal National Mortgage Association* § 294.1, NATL ARCHIVES, <http://www.archives.gov/research/guide-fed-records/groups/294.html> (last visited Nov. 20, 2015). Congress added the “obligations of national mortgage associations” to the list of permissible investments by national banks. National Housing Act Amendments of 1938, Pub. L. No. 75-424, § 13, 52 Stat. 8, 26 (1938).

Shortly thereafter, the name of the National Mortgage Association of Washington was changed to the “Federal National Mortgage Association.” Jo Anne Bradner, Comment, *The Secondary Mortgage Market and State Regulation of Real Estate Financing*, 36 EMORY L.J. 971, 975–76, 976 n.18 (1987). Congress granted a charter to this entity in 1948. Act of July 1, 1948, Pub. L. No. 80-864, § 301(a), 62 Stat. 1206, 1207 (1948).

In 1954, Congress re-chartered the firm to conduct secondary mortgage market operations. Housing Act of 1954, Pub. L. No. 83-560, § 201-07, 68 Stat. 590, 612–22 (1954) (amending Title III of the National Housing Act). With that same act, Congress changed 12 U.S.C. § 24 (Seventh) to allow national banks to invest in “obligations of the Federal National Mortgage Association” instead of “obligations of national mortgage associations.” *Id.* § 203, 68 Stat. at 622.

In 1968, Congress split the entity into Fannie Mae and Ginnie Mae. Housing and Urban Development Act of 1968, Pub. L. No. 90-448, tit. VIII, 82 Stat. 476, 536–46 (1968). 12 U.S.C. § 24 (Seventh) was again amended to allow national banks to invest in the obligations of both entities. *Id.* § 802(j), 82 Stat. at 545.

In 1974, Congress amended 12 U.S.C. § 24 (Seventh) again to permit national banks to invest in obligations of the Federal Home Loan Mortgage Corporation (Freddie Mac). Housing and Community Development Act of 1974, Pub. L. No. 93-383, § 805(c)(1), 88 Stat. 633, 726 (1974).

government-sponsored firms originally consisted of their capital stock. When these firms began issuing and guaranteeing mortgage-backed securities, however, the past amendments to 12 U.S.C. § 24 (Seventh) allowed banks to purchase them.<sup>49</sup>

Regulatory change enabling bank participation in mortgage securitization accelerated in the 1980s, a period of broad deregulation of bank and thrift investments in real estate.<sup>50</sup> Congress again amended this same statutory provision, 12 U.S.C. § 24 (Seventh), by passing the Secondary Mortgage Market Enhancement Act of 1984 (SMMEA).<sup>51</sup> SMMEA loosened Glass-Steagall's restrictions on the ability of national banks to purchase privately issued mortgage-backed securities.<sup>52</sup> These are mortgage-backed securities issued by institutions other than the government-sponsored entities and are often called "private label" securities.<sup>53</sup> More precisely, SMMEA removed restrictions so long as the mortgage-backed securities purchased were investment grade.<sup>54</sup>

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<sup>49</sup> The language of 12 U.S.C. § 24 (Seventh) allows banks to invest in the "obligations, participations, or other instruments of or issued by" these entities. This statutory provision also allows banks to purchase obligations of other entities active in secondary mortgage markets, such as obligations of Federal Home Loan Banks.

<sup>50</sup> See, e.g., MATTHEW SHERMAN, CTR. FOR ECON. & POLICY RESEARCH, A SHORT HISTORY OF FINANCIAL DEREGULATION IN THE UNITED STATES 7–8 (2009), available at <http://www.cepr.net/documents/publications/dereg-timeline-2009-07.pdf> (discussing The Garn-St. Germain Act and deregulation of thrifts and their ability to make commercial real estate investments).

<sup>51</sup> Secondary Mortgage Market Enhancement Act of 1984, Pub. L. No. 98-440, tit. I, 98 Stat. 1689, 1689–92 (1984) [hereinafter SMMEA]. For a history and analysis of the statute as it relates to investments by depository institutions in mortgage-backed securities, see David Abelman, *The Secondary Mortgage Market Enhancement Act*, 14 REAL EST. L.J. 136, 142–44 (1985).

<sup>52</sup> SMMEA § 105(c), 98 Stat. at 1691 (codified as amended at 12 U.S.C. § 24); see also Brent J. Horton, *In Defense of Private-Label Mortgage-Backed Securities*, 61 FLA. L. REV. 827, 854–56 (2009) (discussing how SMMEA allowed FDIC financial institutions to invest in private-label mortgage backed securities).

<sup>53</sup> For a discussion of the development of private label mortgage-backed securities, see David Reiss, *The Federal Government's Implied Guarantee of Fannie Mae and Freddie Mac's Obligations: Uncle Sam Will Pick Up the Tab*, 42 GA. L. REV. 1019, 1030–33 (2008).

<sup>54</sup> SMMEA allowed investments in "mortgage related securities" as that term is defined in the Securities Exchange Act of 1934, 15 U.S.C. § 78c(a)(41) (2012). SMMEA § 105(c), 98 Stat. at 1691 (codified as amended at 12 U.S.C. § 24). The statute also allowed investments in securities sold to "accredited investors" under the Securities Exchange Act. *Id.* (permitting investments that are "offered and sold pursuant to section 4(5) of the Securities Act of 1933 (15 U.S.C. 77d(5))").



The Act also loosened restrictions on the ability of thrifts<sup>55</sup> and credit unions<sup>56</sup> to invest in mortgage-backed securities, including private label securities. Furthermore, SMMEA preempted state laws that would have imposed restrictions on investing in those same categories of mortgage-backed securities.<sup>57</sup> Congress thus removed any requirement that private label mortgage-backed securities be registered under state blue sky laws.<sup>58</sup>

As amended, 12 U.S.C. § 24 (Seventh) continued to subject purchases by national banks of private label mortgage-backed securities to regulations by the OCC.<sup>59</sup> In 1996, the OCC exercised this power to pass a set of rules on the security investments that national banks could make.<sup>60</sup> These rules place certain mortgage-backed securities in a category that allowed for unlimited purchases.<sup>61</sup> Federal thrifts enjoyed even more freedom than national banks; the Office of Thrift Supervision did not pass regulations specifically limiting their ability to invest in mortgage-backed securities.<sup>62</sup>

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<sup>55</sup> SMMEA § 105(a), 98 Stat. at 1691 (amending the Home Owner's Loan Act of 1933, 12 U.S.C. § 1464(c)(1) (2012)).

<sup>56</sup> SMMEA § 105(b) (amending the Federal Credit Union Act, 12 U.S.C. § 1757 (2012)).

<sup>57</sup> SMMEA § 106 (codified as amended at 15 U.S.C. § 77r-1 (2012)).

<sup>58</sup> Patricia A. McCoy & Elizabeth Renuart, *The Legal Infrastructure of Subprime and Nontraditional Home Mortgages* 8 n.40 (Joint Ctr. for Hous. Studies, Harvard Univ., Paper No. UCC08-5, 2008), available at [http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/ucc08-5\\_mccoy\\_renuart.pdf](http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/ucc08-5_mccoy_renuart.pdf).

<sup>59</sup> Even today, 12 U.S.C. § 24 (Seventh) restricts bank purchases of investment securities to "such limitations and restrictions as the Comptroller of the Currency may by regulation prescribe."

<sup>60</sup> Investment Securities, 61 Fed. Reg. 63,972 (Dec. 2, 1996) (to be codified at 12 C.F.R. pts. 1, 7).

<sup>61</sup> See THOMAS P. LEMKE ET AL., MORTGAGE-BACKED SECURITIES § 12:8 (2015) ("As a general matter, national banks can invest in certain residential [Mortgage-Backed Securities (MBS)] and commercial MBS—those that have received investment grade ratings and are issued under Section 4(5) of the 1933 Act—with no limitations."); see also 12 C.F.R. § 1.3(e) (2013) ("The amount of Type IV securities that a bank may purchase and sell is not limited to a specified percentage of the bank's capital and surplus.").

<sup>62</sup> 10 AM. JUR. 2D *Banks & Financial Institutions* § 578 (2015).

## B. PERMITTING BANKS TO ISSUE AND DEAL IN MORTGAGE-BACKED SECURITIES

The Glass-Steagall provisions at 12 U.S.C. § 378(a)(1) restrict the ability of depository institutions to engage “in the business of issuing, underwriting, selling, or distributing” securities for their own account.<sup>63</sup> A series of interpretations by federal bank regulators, however, allowed banks to issue and deal in mortgage-backed securities.<sup>64</sup> Beginning in 1977 and throughout the 1980s and 1990s, the OCC issued a series of interpretations that used a proviso to this statutory prohibition to allow national banks to expand incrementally into the issuance, underwriting, and dealing of mortgage-backed securities.<sup>65</sup> One crucial 1987 OCC interpretation withstood court challenges by the Securities Industry of America that sought to protect the turf of securities underwriters, which were then still separated from banks by Glass-Steagall.<sup>66</sup>

The power of national banks to issue and underwrite mortgage-backed securities (and other asset-backed securities) prompted the Federal Reserve Board to issue its own set of regulatory interpretations under the Glass-Steagall Act to permit bank holding companies to conduct the same activities.<sup>67</sup> These interpretations also survived court challenges by the securities industry.<sup>68</sup> The Federal Reserve also issued another series of

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<sup>63</sup> 12 U.S.C. § 378(a)(1) (2012); *see also* LEMKE ET AL., *supra* note 61, § 12:8 (discussing restrictions on the issuance, sale, and purchase of mortgage-backed securities).

<sup>64</sup> MELANIE L. FEIN, *SECURITIES ACTIVITIES OF BANKS* § 13.02[A] (4th ed. 2015).

<sup>65</sup> LEMKE ET AL., *supra* note 61, § 12:8. The Glass-Steagall Act prohibition included the following proviso, which remains even in current law: “[N]othing in this paragraph shall be construed as affecting in any way such right as any bank, banking association, savings bank, trust company, or other banking institution, may otherwise possess to sell, without recourse or agreement to repurchase, obligations evidencing loans on real estate . . . .” 12 U.S.C. § 378(a)(1) (2015). For a description of the series of OCC interpretations that allowed banks to issue and sell mortgage-backed securities (and other asset-backed securities), *see* FEIN, *supra* note 64, § 13.02[A].

<sup>66</sup> *Sec. Indus. Ass’n v. Clarke*, 885 F.2d 1034 (2d Cir. 1989). For an analysis of the case, *see* FEIN, *supra* note 64, §§ 4.05[C][6], 13.02[A].

<sup>67</sup> FEIN, *supra* note 64, § 13.02[B].

<sup>68</sup> *Sec. Indus. Ass’n v. Fed. Reserve Sys.*, 839 F.2d 47 (2d Cir. 1988).

interpretations permitting these activities under a separate statute, the Bank Holding Company Act.<sup>69</sup>

### C. POTENTIAL SUBSIDY TRANSFERS FROM BANKS TO NON-BANK MORTGAGE AFFILIATES

These liberal interpretations of Glass-Steagall became largely academic with the partial but sweeping repeal of that statute in 2000.<sup>70</sup> Repeal, however, merely moved the goal posts in the efforts by the financial industry to obtain regulatory relief. As described below, in the last decade, regulators allowed banks to support mortgage-backed securities markets in subtler ways; they allowed banks to extend credit to, and purchase assets from, non-bank affiliates involved in mortgage lending. In the aftermath of Glass-Steagall's demise, scholars feared that financial conglomerates would exploit the explicit subsidies afforded to depository banks to gamble with taxpayer money.<sup>71</sup> Although banking laws contained provisions to prevent this subsidy leakage from banks to non-bank affiliates, scholars questioned their effectiveness.<sup>72</sup>

Law professor Saule Omarova provides a clear example of regulators weakening rules designed to prevent subsidy leakage. She argues that the demise of Glass-Steagall division placed much of the work for counteracting subsidy leakage on an obscure Depression-era statutory provision, section 23A of the Federal Reserve Act.<sup>73</sup> Section 23A imposes quantitative limitations on certain extensions of credit and other transactions between a bank and its affiliates that would expose a bank to an affiliate's credit or

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<sup>69</sup> FEIN, *supra* note 64, § 13.02[B].

<sup>70</sup> *See id.* § 13.02[c] (explaining that the Gramm-Leach-Bliley Act also amended the Bank Holding Company Act to permit financial holding companies and subsidiaries of banks to issue and sell mortgage-backed securities and asset-backed securities).

<sup>71</sup> *See, e.g.,* Saule T. Omarova, *From Gramm-Leach-Bliley to Dodd-Frank: The Unfulfilled Promise of Section 23A of the Federal Reserve Act*, 89 N.C. L. REV. 1683, 1689–90 (2011) (discussing the implications of the Gramm-Leach-Bliley Act).

<sup>72</sup> *Id.* at 1691–93 (examining provisions governing banks who subject their operations to affiliate risk).

<sup>73</sup> *Id.* at 1687.

investment risk.<sup>74</sup> That same provision also prohibits banks from purchasing low-quality assets from their nonbank affiliates.<sup>75</sup> It further imposes strict collateral requirements with respect to extensions of credit by banks to non-bank affiliates.<sup>76</sup> Omarova details how banks sought exemptions from these strictures “to leverage their subsidiary banks’ high credit ratings and access to cheap sources of funding to increase profitability of their nonbank subsidiaries.”<sup>77</sup> The Federal Reserve granted numerous exemptions from 1996 until 2010 to allow financial conglomerates to use their bank affiliates to support loans by non-banks.<sup>78</sup> For example, between 2000 and 2006, the Federal Reserve gave Citigroup multiple exemptions to allow its banking subsidiary to purchase subprime mortgage assets from a series of mortgage lenders that Citigroup acquired.<sup>79</sup> Omarova argues that these exemptions enabled Citigroup to expand its non-banking mortgage lending operations and to reap profits from securitization.<sup>80</sup>

#### D. CAPITAL REGULATIONS

Even after banks were permitted to invest in mortgage-backed securities, those investments have still been subject to regulatory capital requirements and other prudential bank regulations.<sup>81</sup> Here too, bank regulators initiated rule changes that encouraged bank investments in mortgage-backed securities.<sup>82</sup> Bank capital regulations placed mortgage-backed securities in preferential categories; these regulations assigned mortgage-backed securities lower risk-weights and thus required banks to hold less regulatory

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<sup>74</sup> *Id.* at 1693.

<sup>75</sup> *Id.*

<sup>76</sup> *Id.*

<sup>77</sup> *Id.* at 1707.

<sup>78</sup> *See id.* at 1708 (describing exemptions allowing bank affiliates to purchase assets such as mortgage and hedge fund loans).

<sup>79</sup> *See id.* at 1709–14 (explaining Citigroup’s exemptions from section 234 and its substantial “exposure to toxic subprime mortgage assets”).

<sup>80</sup> *Id.*

<sup>81</sup> Erik F. Gerding, *The Shadow Banking System and Its Legal Origins* 40–41 (Aug. 23, 2011) (unpublished manuscript) (explaining the imposition of regulatory capital requirements) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1990816](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1990816).

<sup>82</sup> *Id.*

capital against those instruments than against comparable securities.<sup>83</sup>

The lighter capital treatment of mortgage-backed securities turned them into attractive instruments for engaging in regulatory capital arbitrage.<sup>84</sup> Securitization helped facilitate regulatory capital arbitrage by unbundling and re-bundling the risk from the assets underlying a securitization and then stuffing more risk into a particular tranche of securities.<sup>85</sup> The tranche would thus bear more risk than its regulatory risk-weight.<sup>86</sup> Some scholars attribute a significant portion of the increase in securitization in the years immediately before the global financial crisis to banks engaging in regulatory capital arbitrage.<sup>87</sup> These scholars fault this use of securitization for undermining regulatory capital rules,

<sup>83</sup> *Id.* at 40–44 (commenting on the other end of the securitization pipeline, stating that regulators constantly struggled to readjust the regulatory capital requirements for banks that securitized mortgages and other assets). Often banks that sell off assets to securitization vehicles have some level of recourse exposure for those assets. *Id.* Commentators have faulted regulators for requiring too little capital for the risk that securitizing banks retained. *See id.* (describing recourse of sellers and sponsors in many types of securitizations).

<sup>84</sup> *Id.* at 43–44.

<sup>85</sup> *Id.* at 1, 42.

<sup>86</sup> *Id.*; *see also* Laurence H. Meyer, Governor, Fed. Res. Sys., Financial Globalization and Efficient Banking Regulation, Remarks Before the Annual Washington Conference of the Institute of International Bankers (Mar. 2, 1998), *available at* <http://www.federalreserve.gov/boarddocs/speeches/1998/19980302.htm> (explaining that some senior regulators recognized the dangers of banks who used securitization as a means of regulatory arbitrage). *See generally* David Jones, *Emerging Problems with the Basel Capital Accord: Regulatory Capital Arbitrage and Related Issues*, 24 *J. BANKING & FIN.* 35 (2000) (describing ways in which banks use securitization to engage in regulatory capital arbitrage); Viral V. Acharya et al., *Capital, Contingent Capital, and Liquidity Requirements*, in *REGULATING WALL STREET: THE DODD-FRANK ACT AND THE NEW ARCHITECTURE OF GLOBAL FINANCE* 143 (Viral V. Acharya et al. eds. 2011) (arguing that banks widely exploited securitization for regulatory capital arbitrage in years before the crisis).

<sup>87</sup> *See* Acharya et al., *supra* note 86, at 147–50 (explaining how banks circumscribed the Basel accords to engage in regulatory capital arbitrage through securitization); *see also* ERIK F. GERDING, *LAW, BUBBLES, AND FINANCIAL REGULATION* 259–60 (2014) (explaining that securitization facilitated a system that “did not diffuse risk, but hid, recycled and concentrated it in complex daisy chains”); Viral v. Acharya & Matthew Richardson, *Causes of the Financial Crisis*, 21 *CRITICAL REV.* 195, 201–04 (2009) (describing various means of regulatory arbitrage); Viral V. Acharya et al., *Securitization Without Risk Transfer* 2–3 (Nat’l Bureau of Econ. Research, Working Paper No. 15730, 2010), *available at* <http://www.nber.org/papers/w15730.pdf> (explaining the use of “conduits” in regulatory arbitrage schemes).

masking the leverage and systemic risk of important financial institutions, and thus contributing significantly to the severity of the crisis.<sup>88</sup>

#### IV. CORRELATIONS: MISPRICING MORTGAGE-BACKED SECURITIES

The regulatory changes described in Part III were largely premised on the ability of mortgage-backed securities to mitigate credit, liquidity, and interest rate risk, as described in Part II. The greater investment by banks in mortgage-backed securities and the functioning of mortgage-backed securities markets relied heavily on the prices of these instruments accurately reflecting credit, liquidity, and interest rate risk.

Yet correlations in losses among mortgages and other assets underlying a securitization can suddenly increase. When this occurred in the subprime crisis, it revealed significant and widespread mispricing of the credit, liquidity, and interest rate risk of mortgage-backed securities.<sup>89</sup> Moreover, errors in mispricing one issue of asset-backed securities can become magnified every time those securities are re-securitized. So small errors in pricing securities backed by mortgages cause even larger errors in the pricing of a second securitization, a collateralized debt obligation (CDO), created when those initial asset-backed securities are pooled and used to back another issuance of asset-backed securities.<sup>90</sup> The errors increase even further when CDO securities are themselves securitized (called a CDO-squared, or CDO<sup>2</sup>).<sup>91</sup> Unexpected increases in correlation on mortgage

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<sup>88</sup> See Acharya et al., *supra* note 86, at 147–50 (explaining how banks used various methodologies to double balance sheets from 2004 to 2007 while only nominally increasing their “regulated” risk); GERDING, *supra* note 87, at 259–60.

<sup>89</sup> See Joshua Coval et al., *The Economics of Structured Finance*, 23 J. ECON. PERSP. 3, 17–19 (2009) (explaining how investors may have been “lured” into investing in structural finance instruments without fully appreciating the inherent risks, which means they received a lower yield than they should have).

<sup>90</sup> *Id.* at 21.

<sup>91</sup> See *id.* at 17, 21, 23 (recognizing that small errors are significantly magnified by the CDO structure).

defaults contributed to the freezing of the asset-backed securities markets and to the severity of the subprime crisis.<sup>92</sup>

To understand how this transpired, it is important first to understand how diversification in the mortgages underlying mortgage-backed securities may fail to mitigate risk. Then it is critical to see how securitization and regulatory changes—particularly those changes that enabled massive financial industry consolidation—contributed to the formation of a national real estate market in which mortgage underwriting became more risky and more homogenized. This national market created the possibility for correlated mortgage losses around the country and a national housing market crash.

#### A. THE INADEQUACIES OF DIVERSIFICATION

As noted above, common risk exposure factors increase the possibility of correlated losses on all mortgages in a given real estate market. Although many different mortgages may back a particular issuance of mortgage-backed securities, if many of those mortgages default at the same time, investors in the securities will suffer losses nonetheless. These common factors increase not only the correlation of default risk among mortgages in the market but, moreover, the correlation of losses on mortgage-backed securities based on those mortgages as well.<sup>93</sup> High correlation of default risk in mortgages undermines the diversification benefits of pooling assets.<sup>94</sup> Correlation in default risk for mortgages also translates into high correlation of risk among entirely separate issuances of mortgage-backed securities.<sup>95</sup> Distinct pools of mortgages may experience defaults at the same moment,

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<sup>92</sup> See Hellwig, *supra* note 27, at 145 (noting the effect of correlations on mortgage-backed securities).

<sup>93</sup> See *id.* (describing the decrease in effectiveness of mortgage-backed securities due to the correlation of default risks and mortgage securities).

<sup>94</sup> See *id.* (explaining how default probabilities undermine the diversification of securities investments).

<sup>95</sup> See *id.* at 145, 152, 155 (noting how correlated default risk may still affect separate securities issuances).

frustrating the ability of investors to diversify by purchasing different issues of mortgage-backed securities.

Martin Hellwig contends that historical data and statistical analysis inadequately measures fluctuations in the correlations of default risk on mortgages or losses on mortgage-backed securities.<sup>96</sup> Difficulties predicting correlations make the true value of mortgage-backed securities uncertain.<sup>97</sup> This uncertainty undermines the rationale for allowing banks to invest in these questionably safe classes of instruments.

#### B. THE CREATION OF A NATIONAL MORTGAGE MARKET AND AN “UNTHINKABLE” NATIONWIDE REAL ESTATE BUST: SECURITIZATION AND FINANCIAL CONSOLIDATION

The analysis above discusses the correlations of prices, returns, and losses in a given real estate market. In the United States, market participants and policymakers before the crisis seemed to have assumed that the country was composed of numerous distinct real estate markets. Although particular markets suffered busts (for example, Texas in the 1980s), a nationwide decline in housing prices had not occurred since the Great Depression, and prominent policymakers believed recurrence was unlikely.<sup>98</sup>

The current crisis betrayed this confidence as housing prices dropped in real estate markets countrywide.<sup>99</sup> The correlation

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<sup>96</sup> *Id.* at 159–60.

<sup>97</sup> Erik F. Gerding, *supra* note 30, at 172–73 (2009) (discussing how unexpected correlations undermine the value of securitization).

<sup>98</sup> Edmund L. Andrews, *Greenspan Concedes Error on Regulation*, N.Y. TIMES, Oct. 23, 2008, [http://www.nytimes.com/2008/10/24/business/economy/24panel.html?\\_r=0](http://www.nytimes.com/2008/10/24/business/economy/24panel.html?_r=0) (reporting that Federal Reserve Chair Alan Greenspan dismissed concerns about permissive financial regulation because “housing prices had never endured a nationwide decline and that a bust was highly unlikely”). Markus Brunnermeier explains how securitization relied on low mortgage default rates and suffered a blind spot: “[P]ast downturns in housing prices were primarily regional phenomena—the United States had not experienced a nationwide decline in housing prices in the period following World War II. The assumed low cross-regional correlation of house prices generated a perceived diversification benefit that especially boosted the valuations of AAA-rated tranches . . . .” Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007–2008*, 23 J. ECON. PERSP. 77, 81 (2009).

<sup>99</sup> Dwight Jaffee et al., *Mortgage Origination and Securitization in the Financial Crisis*, in RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM 61, 66–67 (Viral V.



between housing prices in once-separate regional markets can be explained, in part, by two factors: the advent of securitization and the increased consolidation in the real estate lending and financial services industry.

1. *Securitization and the Spread of Risky Mortgage Underwriting.* The growth of mortgage-backed securities created a demand for securities from different regional markets to facilitate pooling and diversification.<sup>100</sup> Securitization also required some degree of standardization in underwriting standards to ensure the quality of mortgages and to price securitizations.<sup>101</sup> Restricting the GSEs to mortgages that met certain credit risk and other criteria created a market space for private label mortgage-backed securities.<sup>102</sup> When some private label securitizations began reaping profits from subprime and exotic mortgages, it spurred copycat securitizations.<sup>103</sup> Subprime mortgage originations were dispersed across multiple regions.<sup>104</sup> Ultimately, even the GSEs entered the subprime market by purchasing subprime mortgages and private label mortgage-backed securities collateralized by

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Acharya & Matthew Richardson eds., 2009) (citing statistics of housing price declines after crisis hit).

<sup>100</sup> See FRANK J. FABOZZI & JOHN N. DUNLEVY, *REAL ESTATE-BACKED SECURITIES* 142 (2001) (describing residential mortgage-backed securities investors' demands for geographic diversification in pools of mortgages).

<sup>101</sup> See MEGAN DORSEY & DAVID ROCKWELL, *FINANCING RESIDENTIAL REAL ESTATE* 29 (13th ed. 2005) (describing the need for and development of standardized loan underwriting and documentation standards).

<sup>102</sup> See Reiss, *supra* note 53, at 1030–33 (describing the development of the private label securitization market).

<sup>103</sup> Erik F. Gerding, *Deregulation Pas de Deux: Dual Regulatory Classes of Financial Institutions and the Path to Financial Crisis in Sweden and the United States*, 15 *NEXUS J.L. & POL'Y* 135, 152–53 (2010). See generally Patricia A. McCoy, *Federal Preemption, Regulatory Failure, and the Race to the Bottom in U.S. Mortgage Lending Standards*, in *THE PANIC OF 2008: CAUSES, CONSEQUENCES AND IMPLICATIONS FOR REFORM* 132 (Lawrence E. Mitchell & Arthur E. Wilmarth, Jr. eds., 2010) (arguing that the race to the bottom in mortgage lending standards was enabled by federal preemption of state consumer finance laws and fragmented U.S. systems of financial regulation).

<sup>104</sup> For a regional analysis of the dispersion of subprime mortgage origination, see Christopher J. Mayer & Karen Pence, *Subprime Mortgages: What, Where, and to Whom?* (Nat'l Bureau of Econ. Research Working Paper, No. 14083, 2008), available at <http://www.nber.org/papers/w14083.pdf>.

subprime mortgages for their own investment portfolios.<sup>105</sup> Several studies have suggested that securitization led to lax screening of mortgage loans.<sup>106</sup>

Even if lax screening did not occur, securitization drove the nationwide diffusion of subprime mortgage origination. Kathleen Engel and Patricia McCoy provide a detailed history of how investors seeking higher yields on asset-backed securities had downstream effects; securitization vehicles sought particular types of exotic mortgages such as hybrid adjustable-rate-mortgages (ARMs), interest-only ARMs, and pay-option ARMs.<sup>107</sup> These mortgage contracts increased the risk of a payment shock for borrowers if interest rates reset to a higher rate.<sup>108</sup> At the same time, securitization drove the increasing spread of high loan-to-value ratio mortgages to subprime mortgagors.<sup>109</sup> This meant that when a shock hit, borrowers were more likely to default, and asset-based securities investors exposed to those securities had little cushion to protect their investments.<sup>110</sup>

The risk to financial institutions investing in asset-backed securities was not that a payment shock would cause individual mortgages to default. After all, securitization was supposed to hedge the risk of default by having a geographically diversified pool of mortgages.<sup>111</sup> Realistically, geographic diversification was undermined because the same exotic and subprime mortgages

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<sup>105</sup> See Gerding, *supra* note 103, at 153–54 (describing Freddie Mac and Fannie Mae's purchase of riskier subprime mortgage instruments).

<sup>106</sup> See, e.g., Benjamin J. Keys et al., *Did Securitization Lead to Lax Screening? Evidence from Subprime Loans*, 125 Q. J. ECON. 307, 354 (2010) (“[W]e conclude from our empirical analysis that there was a causal link between ease of securitization and screening.”); Giovanni Dell’Ariccia et al., *Credit Booms and Lending Standards: Evidence From the Subprime Mortgage Market* 31 (Ctr. for Econ. Policy Research, Discussion Paper No. 6683, 2008) (“[W]e find evidence that [credit] standards declined more where the credit boom was larger.”). But see Ryan Bubb & Alex Kaufman, *Securitization and Moral Hazard: Evidence from Credit Score Cutoff Rules*, 63 J. MONETARY ECON. 1, 17 (2014) (contesting the claim that securitization led to lax screening of mortgages by originators).

<sup>107</sup> ENGEL & MCCOY, *supra* note 5, at 34–35.

<sup>108</sup> *Id.* at 34.

<sup>109</sup> *Id.* at 35.

<sup>110</sup> *Id.* at 35, 40.

<sup>111</sup> Patricia A. McCoy et al., *Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure*, 41 CONN. L. REV. 1327, 1332 (2009).

with the same payment shock risks were being extended across the nation.<sup>112</sup>

Securitization was to blame. Securitizations require two features. First, some standardization of the types of assets purchased by the securitization vehicle is needed to enable purchasers and intermediaries to review and price the credit quality of those assets.<sup>113</sup> Standardization could mean securitization contracts would specify that a certain minimum percentage of the assets in the pool would have certain contractual features, for example ARMs.<sup>114</sup> Second, securitized assets must be purchased from different geographic regions.<sup>115</sup> These two features, combined with a demand for higher-yielding mortgages, meant that the same type of mortgages subject to the same types of payment shocks were being offered around the United States.<sup>116</sup>

When the payment shock hit, waves of borrower defaults hit multiple regional mortgage markets at roughly the same time.<sup>117</sup> This caused unexpected levels of correlated losses within the pools of individual securitizations.<sup>118</sup> But the problem was not limited to individual securitizations. The standardization across

<sup>112</sup> FIN. CRISIS INQUIRY COMM'N, *THE FINANCIAL CRISIS INQUIRY REPORT* 229 (2011) [hereinafter *INQUIRY REPORT*], available at <http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf> (relating Federal Reserve Chair Ben Bernanke's testimony that he "did not recognize . . . the extent to which the system had flaws and weaknesses in it that were going to amplify the initial shock from subprime and make it into a much bigger crisis").

<sup>113</sup> See McCoy et al., *supra* note 111, at 1375 ("[C]reating centralized, standardized markets for the trading of . . . mortgage-backed securities would facilitate the short-selling needed to keep asset prices at fundamental levels.").

<sup>114</sup> See Michael G. Crouhy et al., *The Subprime Credit Crisis of 2007*, 16 *J. DERIVATIVES* 81, 84 (2008) (describing the alignment of "covenants structured to generate a desired credit rating in order to meet investor demand").

<sup>115</sup> McCoy et al., *supra* note 111, at 1332.

<sup>116</sup> See *INQUIRY REPORT*, *supra* note 112, at 102 (noting how "nonprime loans" grew to comprise the largest share in the market for house loans).

<sup>117</sup> See *id.* at 129 ("Across the country, in regions where subprime and Alt-A mortgages were heavily concentrated, borrowers would default in large numbers. This was not how it was supposed to work. Losses in one region were supposed to be offset by successful loans in another region."). Some commentators, however, point to data that many mortgage defaults began before interest rates on ARMs reset, which would indicate that mortgages were extended to borrowers who could not make payments in a favorable interest rate environment. See Les Christie, *Subprime Loans Defaulting Even Before Resets*, CNNMoney (Feb. 20, 2008), [http://money.cnn.com/2008/02/20/real\\_estate/loans\\_failing\\_pre\\_resets/](http://money.cnn.com/2008/02/20/real_estate/loans_failing_pre_resets/).

<sup>118</sup> *INQUIRY REPORT*, *supra* note 112, at 129.

securitization markets led different securitization vehicles to purchase the same types of exotic mortgages subject to the same types of payment shocks.<sup>119</sup> This meant that losses on particular classes of mortgages affected wide swaths of the securitization market, including banks that regulatory changes had enabled to invest in that market.<sup>120</sup> Securitization undermined the diversification upon which it relied and upon which regulatory changes loosening restrictions on bank investments in mortgage-related securities were premised.<sup>121</sup> Fire sales of asset-backed securities began, liquidity in securitization markets evaporated, and vicious feedback loops began to form.<sup>122</sup>

2. *Financial Industry Consolidation and Regulatory Change.* Profits from securitization, particularly from securitizing subprime mortgages, spurred banking and investment banking-based conglomerates to purchase mortgage originators with large subprime businesses.<sup>123</sup> These purchases fit within a larger wave of financial industry consolidation, across both geographic regions and financial sectors (banking, investment banking, insurance, mortgage lending, etc.), in the wake of the progressive disintegration and ultimate repeal of Glass-Steagall.<sup>124</sup> The demise of Glass-Steagall followed the removal of various geographic restrictions on national and state banks that occurred over a much longer period.<sup>125</sup>

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<sup>119</sup> See *id.* at 102, 129 (noting the market share growth of subprime loans, which were subject to similar default risks).

<sup>120</sup> See *id.* at 155, 433 (discussing how the losses on the housing market affected largely unconnected firms, many of which were “systemically important institutions”).

<sup>121</sup> See *id.* at 328 (noting how ratings agencies had put too much faith in diversification to prevent systemic loss on mortgage-backed securities investments).

<sup>122</sup> Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1372–73 (2011) (discussing how imprudent financial policy causes liquidity problems, fire sales in markets, and feedback effects).

<sup>123</sup> See ENGEL & MCCOY, *supra* note 5, at 57 (“To ensure a constant supply of loans to feed their securitization machines, arrangers bought subprime lenders and made them captive.”).

<sup>124</sup> For a definitive account of this consolidation and the role law played in it, see Arthur E. Wilmarth, Jr., *The Transformation of the U.S. Financial Services Industry, 1975–2000: Competition, Consolidation, and Increased Risk*, 2002 U. ILL. L. REV. 215, 250–61.

<sup>125</sup> CARNELL, MACEY & MILLER, *supra* note 42, at 25–27 (describing the rise of branch and interstate banking and the fall of Glass-Steagall).

Legal changes resulted in large financial conglomerates increasingly engaging in transregional mortgage lending operations and acquiring larger shares of the mortgage lending market.<sup>126</sup> The market share of the mortgage origination business held by the top three mortgage lenders almost doubled from 19.4% to 36.6% between 1998 and 2007.<sup>127</sup> By 2007, the ten largest mortgage originators in the United States had a combined 71.7% share of this market.<sup>128</sup>

Note that one of the prime justifications for financial industry consolidation was to allow financial institutions to diversify.<sup>129</sup> Diversification via consolidation, like diversification offered by pooling mortgages from different parts of the country, helped create a national market for underwriting mortgages.<sup>130</sup> This national market, the diffusion of financial innovation, and competitive pressures fostered the spread of exotic and subprime mortgages.<sup>131</sup> Thus diversification via consolidation undermined itself by homogenizing real estate lending in regional markets.

Moreover, even nominally independent mortgage lenders were often tightly connected via funding networks to a small number of large financial conglomerates that provided financing to, and purchased securities from, these lenders.<sup>132</sup> This means that the data on banking consolidation in mortgage lending and

<sup>126</sup> Jaffee et al., *supra* note 99, at 67.

<sup>127</sup> *Id.*

<sup>128</sup> *Id.*

<sup>129</sup> Wilmarth, *supra* note 124, at 444.

<sup>130</sup> See William C. Appgar & Allen J. Fishbein, *The Changing Industrial Organization of Housing Finance and the Changing Role of Community-Based Organizations* 3–4 (Joint Ctr. for Hous. Studies, Harvard Univ., Working Paper, No. BABC 04-9, 2004) (describing how banking industry consolidation contributed to “the rapidly expanding subprime lending industry”).

<sup>131</sup> See INQUIRY REPORT, *supra* note 112, at 11 (“The companies issuing [nontraditional] loans made profits that attracted envious eyes. New lenders entered the field. Investors clamored for mortgage-related securities and borrowers wanted mortgages. The volume of subprime and nontraditional lending rose sharply.”).

<sup>132</sup> See generally Richard Stanton, Johan Walden & Nancy Wallace, *The Industrial Organization of the US Residential Mortgage Market*, 6 ANN. REV. FIN. ECON. 259 (2014) (noting the risk created when “nominally independent” financial entities are heavily interrelated to the operation of large financial institutions).

securitization markets may understate the true concentration of risk in the industry in the run-up to the crisis.<sup>133</sup>

### C. WAREHOUSE AND RECOURSE RISK FOR ORIGINATING BANKS

The collapse of investor demand for mortgage-backed securities in the subprime crisis also impacted banks that originated mortgages for distribution to securitization vehicles.<sup>134</sup> Originating banks (and other mortgage lenders) were subject to warehouse risk, i.e., the risk of being unable to sell mortgages they originated and offload the credit, liquidity, and interest rate risk associated with those loans.<sup>135</sup>

Moreover, even when banks successfully sell loans for a securitization, they may also have recourse obligations for those assets.<sup>136</sup> Although accounting and bank regulatory capital standards may have treated the likelihood of these obligations being triggered as remote, these obligations caused significant losses for banks and other financial institutions.<sup>137</sup> Indeed, large financial institutions that sold mortgages into securitizations have agreed to settlements totaling billions of dollars because those mortgages violated representations and warranties about mortgage quality and underwriting standards. This massive recourse liability meant that a significant amount of risk that banks moved off their balance sheets in securitizations eventually rematerialized on their financial statements.<sup>138</sup>

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<sup>133</sup> *Id.* at 287.

<sup>134</sup> See INQUIRY REPORT, *supra* note 112, at 74 (explaining how mortgage originators were adversely affected when investor demand for “risky assets” sharply declined).

<sup>135</sup> Adrian D’Silva & Brian Gordon, *Hedges in the Warehouse: The Banks Get Trimmed*, (Fin. Mkts. Grp., Fed. Reserve Bank of Chi., Policy Discussion Paper, No. 2008-5, 2008), available at [http://www.chicagofed.org/digital\\_assets/publications/policy\\_discussion\\_papers/2008/PDP2008-5.pdf](http://www.chicagofed.org/digital_assets/publications/policy_discussion_papers/2008/PDP2008-5.pdf).

<sup>136</sup> See Gerding, *supra* note 81, at 42 (giving an example of when a bank may be exposed to a recourse obligation). Securitization sponsors may also have obligations to warehouse lenders. See Stanton, Walden & Wallace, *supra* note 132, at 271 (relating New Century’s inability to pay the margin calls made by its warehouse lenders).

<sup>137</sup> See Stanton, Walden & Wallace, *supra* note 132, at 271 (discussing New Century’s inability to satisfy its obligations).

<sup>138</sup> *E.g.*, Andrew Grossman & Christina Rexrode, *Citigroup to Pay \$7 Billion in Mortgage Probe*, WALL ST. J., July 14, 2014, <http://www.wsj.com/articles/citigroup-to-pay-7-billion-to>

## V. IT'S NOT JUST RISK, IT'S CYCLICALITY

Taking a step back from the failures of securitization during the financial crisis, any form of bank investment in real estate can pose risks because of the cyclicity of real estate markets, the historical links between real estate and banking crises, and the cyclicity of bank leverage.

## A. POSITIVE SERIAL CORRELATION OF REAL ESTATE PRICES

Empirical studies document positive serial correlation in the prices of residential real estate.<sup>139</sup> Positive serial correlation, in lay terms, means that when prices rise, they continue to rise, and when they fall, they continue to fall.<sup>140</sup> Positive serial correlation can translate into boom and bust cycles in real estate markets.<sup>141</sup> Extended boom times in financial markets can mask mispricing of risk by market participants. For example, if models used to price risk and financial instruments (i.e., asset-backed securities) use historical data that does not reach back to before the boom, the models may underestimate risk.<sup>142</sup> Furthermore, long cycles—and

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<sup>139</sup> See, e.g., Karl E. Case & Robert J. Shiller, *The Efficiency of the Market for Single-Family Homes*, 79 AM. ECON. REV. 125 (1989) (examining the economic efficiency of real estate markets in four American cities and finding that positive serial correlation may exist); Peter Englund & Yannis M. Ioannides, *House Price Dynamics: An International Empirical Perspective*, 6 J. HOUSING ECON. 119, 133 (1997) (finding correlation of house prices within fifteen OECD countries); Peter Englund, John M. Quigley & Christian L. Redfeare, *Improved Price Indexes for Real Estate: Measuring the Course of Swedish Housing Prices*, 44 J. URBAN ECON. 171, 195 (1998) (finding positive serial correlation in Swedish residential real estate); Edward L. Glaeser & Joseph Gyourko, *Housing Dynamics 2–3* (Apr. 21, 2007) (unpublished manuscript), <http://realestate.wharton.upenn.edu/news/newsletter/pdf/may07.pdf> (documenting positive serial correlation for new construction).

<sup>140</sup> See Franklin Allen & Elena Carletti, *Systemic Risk from Real Estate and Macro-Prudential Regulation 8* (Aug. 22, 2011) (unpublished manuscript), <http://www.federalreserve.gov/events/conferences/2011/rsr/papers/AllenCarletti.pdf> (“[O]nce a real estate boom has started it is likely that it will persist for some time. Similarly for a bust, once real estate prices have started to fall this is likely to continue.”).

<sup>141</sup> *Id.* (noting various boom and bust cycles in Miami and Los Angeles).

<sup>142</sup> See Gerding, *supra* note 30, at 141 (noting the pitfalls of value-at-risk models when assumptions are based on incomplete or unreliable historical data).

a long period since the last real estate crisis—may induce “disaster myopia” in both market participants and regulators.<sup>143</sup>

## B. CORRELATIONS AND LINKAGES BETWEEN REAL ESTATE AND BANK CRISES

1. *Historical Data.* A wealth of studies reveal another kind of correlation that is, perhaps, most troublesome for bank investments in real estate markets. Surveys of banking crises across countries and throughout history reveal a close correlation between real estate crises and banking crises. Carmen Reinhart and Kenneth Rogoff document a post-World War II pattern of real estate prices booming before major banking crises, declining the year a banking crisis hit, and continuing to decline for a period of several years afterwards.<sup>144</sup> Their dataset shows that this pattern holds in both developed and emerging market countries.<sup>145</sup> In looking at developed countries in the period from 1970 to 2001, Michael Bordo and Olivier Jeanne found a pattern of banking crises occurring either at the height of a real estate boom or immediately following a crash.<sup>146</sup> In another study that looked at housing price data before forty-six banking crises, a boom and bust in real estate prices preceded more than two-thirds of those crises.<sup>147</sup> In that same study, banking crises followed thirty-five

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<sup>143</sup> Richard J. Herring & Susan Wachter, *Real Estate Booms and Banking Busts: An International Perspective* 12–18 (Wharton Fin. Insts. Ctr., Paper No. 99-27, 1999), <http://fic.wharton.upenn.edu/fic/papers/99/9927.pdf> (explaining “disaster myopia” as a risk that banks and regulators will fail to adequately account for the risk of a shock, which has historically occurred with low frequency but still presents significant potential for financial loss that should not be discounted).

<sup>144</sup> CARMEN M. REINHART & KENNETH S. ROGOFF, *THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY* 159 (2009); see also Carmen M. Reinhart & Kenneth S. Rogoff, *Is the 2007 U.S. Subprime Crisis So Different? An International Historical Comparison*, 98 AM. ECON. REV.: PAPERS & PROC. 339, 342 (2008) (noting the patterns that are characteristic of financial crises).

<sup>145</sup> REINHART & ROGOFF, *supra* note 144, at 159–61.

<sup>146</sup> Michael D. Bordo & Olivier Jeanne, *Boom-Busts in Asset Prices, Economic Instability, and Monetary Policy* 9–10 (Nat’l Bureau of Econ. Research, Working Paper No. 8966, 2002), available at <http://www.nber.org/papers/w8966.pdf>.

<sup>147</sup> Christopher Crowe et al., *How to Deal with Real Estate Booms: Lessons from Country Experiences* 5 (Int’l Monetary Fund, Working Paper No. 11/91, 2011), available at <http://www.imf.org/external/pubs/ft/wp/2011/wp1191.pdf>.



out of fifty-one real estate boom and bust cycles.<sup>148</sup> Other economists have documented links between banking crises (or series of banking crises) in specific countries and real estate boom and bust periods.<sup>149</sup>

2. *Feedback Mechanisms.* A number of feedback mechanisms can explain this historical correlation between bank and real estate crises. Bank investment in real estate markets creates a potential connecting rod between the two. Real estate loans and investments by banks can fuel real estate booms. Indeed, Franklin Allen and Douglas Gale have developed models of asset price bubbles in which credit fuels the formation of a bubble.<sup>150</sup> Rising real estate prices can, in turn, fuel bank profits, lower the rate of loan defaults, and stimulate greater lending.<sup>151</sup> These feedback loops can lurch in reverse when real estate prices drop. Loan defaults then rise and bank losses increase. This may cause banks to curtail lending.<sup>152</sup> Restricted lending can cause defaults to rise further.

Moreover, plummeting residential real estate prices can have significant consequences for the broader economy through various

<sup>148</sup> *Id.*; see also Allen & Carletti, *supra* note 140, at 7 (“There is extensive evidence that the most important cause of banking crises is real estate booms and busts.”).

<sup>149</sup> *E.g.*, Herring & Wachter, *supra* note 143, at 30 (noting the effect of post-World War II farmland boom and bust on the “failure of more than sixty agricultural banks”). For a discussion of the link between the three banking crises in Norway from the 1890s to the 1990s and real estate booms and busts, see Karsten R. Gerdrup, *Three Episodes of Financial Fragility in Norway Since the 1890’s* (Bank for Int’l Settlements, Working Paper No. 142, 2003), available at <http://www.bis.org/publ/work142.pdf>.

<sup>150</sup> Franklin Allen & Douglas Gale, *Bubbles and Crises*, 110 *ECON. J.* 236, 239 (2000); see also Franklin Allen & Douglas Gale, *Asset Price Bubbles and Stock Market Interlinkages*, in *ASSET-PRICE BUBBLES: THE IMPLICATIONS FOR MONETARY, REGULATORY, AND INTERNATIONAL POLICIES* 323 (William C. Hunter et al. eds., 2003) (“Stock market interlinkages have played an important role in the formation and collapse of bubbles from early times.”); Franklin Allen & Douglas Gale, *Asset Price Bubbles and Monetary Policy*, in *GLOBAL GOVERNANCE AND FINANCIAL CRISES* 19 (Meghnad Desai & Yahia Said eds., 2004) (“[W]here asset prices have risen and then collapsed dramatically, an expansion in credit following financial liberalization appears to have been an important factor.”).

<sup>151</sup> See Ian Christensen, *Mortgage Debt and Procyclicality in the Housing Market*, 2001 *BANK OF CAN. REV.* 35, 37, available at <http://www.bankofcanada.ca/wp-content/uploads/2011/08/christensen.pdf> (“[R]ising house prices allowed existing homeowners to increase their debt levels dramatically.”).

<sup>152</sup> See *id.* at 37–38 (explaining that default rates group when housing prices reverse).

channels. These include depressing household wealth and consumption and constricting the real estate construction market.<sup>153</sup> Collapsing real estate prices can also create stickiness in labor markets because borrowers may be unwilling or unable to sell houses to move to where the jobs are located.<sup>154</sup> These broader economic effects feed into further problems for banks. The prospect of rising defaults and losses can cause banks to suffer runs, solvency crises, or a toxic combination of both.<sup>155</sup>

### C. CYCLES IN BANK LEVERAGE

There are more complex interactions that may explain the connection between bank crises. If positive serial correlation means that real estate markets may be cyclical, then cutting edge economic research indicates that financial institution leverage can be cyclical too.

Economist John Geanakoplos has presented influential new theories of a macroeconomic leverage cycle.<sup>156</sup> Geanakoplos observed that equilibrium in credit markets depends not only on interest rates but also on the margin or collateral that lenders demand for loans.<sup>157</sup> The level of margin or collateral for a loan

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<sup>153</sup> See *How Does the Slowdown in the Housing Market Affect the Construction Sector and Other Housing-Dependent Industries*, FED. RES. BANK S.F. (Jan. 2007), <http://www.frbsf.org/education/publications/doctor-econ/2007/january/housing-business-cycles> (explaining how falling home prices makes building homes less profitable, which causes the construction market to contract).

<sup>154</sup> See generally Vincent Sterk, *Home Equality, Mobility, and Macroeconomic Fluctuations*, 74 J. MONETARY ECON. 16 (2015) (presenting a business cycle model that connects the decline in prices in the housing market and the reduction of mobility, thus disrupting the labor market).

<sup>155</sup> See David C. Wheelock, *What Happens to Banks When House Prices Fall? U.S. Regional Housing Busts of the 1980s and 1990s*, 88(5) FED. RES. BANK. ST. LOUIS REV. 413, 413 (2006), <https://research.stlouisfed.org/publications/review/06/09/Wheelock.pdf> (“States that experienced large declines in residential real estate prices tended to suffer more bank distress, and longer and deeper declines in economic activity, than did other states.”).

<sup>156</sup> John Geanakoplos, *The Leverage Cycle* 1 (Cowles Found., Discussion Paper No. 1715, 2009), available at <http://papers.ssrn.com/abstract=1441943> (arguing that supply and demand operate so as to determine loan leverage and the interest rate). See generally Ana Fostel & John Geanakoplos, *Leverage Cycles and the Anxious Economy*, 98 AM. ECON. REV. 1211 (2008) (introducing the concept of an “anxious economy,” which is affected by leverage cycles).

<sup>157</sup> Geanakoplos, *supra* note 156, at 1.

dictates the leverage of the borrower, and Geanakoplos theorized that leverage in the economy experiences cycles.<sup>158</sup> During boom times, lenders demand less collateral and leverage increases.<sup>159</sup> Increased lending fuels the economy and drives margins lower and leverage even higher. As a result, when the economy sours, lenders demand more collateral.<sup>160</sup> Reduced leverage and lending throttles back the economy.<sup>161</sup>

Geanakoplos's theoretical work has received empirical support in the wake of the crisis, at least with respect to financial institutions with large investment banking operations. Tobias Adrian and Hyun Song Shin present evidence that financial institution leverage has fluctuated in procyclical manner along several dimensions. First, they find procyclical changes in the leverage in the repo transactions by which large financial conglomerates obtain short term funding.<sup>162</sup> This aspect of their work focuses on changes in collateral for loans, the same metric that Geanakoplos examines.

However, they also look at a second way of measuring leverage: the ratio of a firm's assets to its liabilities. Here, their data indicates that investment banks (including bank holding companies with large investment bank affiliates) dramatically increased their leverage in the United States during boom years and then dramatically decreased leverage after crises struck in 1987, 1998, and 2007.<sup>163</sup> They also show that the repossession market, which these financial institutions rely on for short-term

<sup>158</sup> *Id.* at 2.

<sup>159</sup> *Id.*; see also GERDING, *supra* note 87, at 383 n.113 ("Note that the value of non-cash assets held as collateral may also increase during boom times. If the dollar value of collateral stays the same, and assets posted as collateral rise in value, the lender may withdraw assets from collateral and deploy them for other purposes.")

<sup>160</sup> See Geanakoplos, *supra* note 156, at 2 ("[After the economic situation in 2009] leverage has been drastically curtailed by nervous lenders wanting more collateral for every dollar.")

<sup>161</sup> See *id.* ("De-leveraging is the main reason the prices of both securities and home prices are still falling.")

<sup>162</sup> TOBIAS ADRIAN & HYUN SONG SHIN, FED. RESERVE BANK OF N.Y., STAFF REPORT NO. 360, MONEY, LIQUIDITY, AND MONETARY POLICY 6 (2009), available at [https://www.newyorkfed.org/medialibrary/media/research/staff\\_reports/sr360.pdf](https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr360.pdf).

<sup>163</sup> *Id.* at 7 fig.8.

financing, grew significantly in the boom years leading to the Panic of 2008, peaked in March 2008, and then crashed.<sup>164</sup>

Geanakoplos's model of a leverage cycle follows other macroeconomic models of how credit more generally can generate economic cycles. For example, in macroeconomics, the influential Kiyotaki–Moore model illustrates a mechanism in which collateralized lending can amplify exogenous shocks to the economy.<sup>165</sup> Similar to the Geanakoplos's analysis above, if these shocks cause the value of collateral to drop, lenders can dramatically curtail lending, slowing economic growth.<sup>166</sup>

#### D. CYCLES COUPLED: PERFECT STORMS

If real estate and bank lending suffer from cyclical boom-bust behavior, then real estate lending and bank investment can work to couple these two cycles together. Bank lending fuels real estate prices, and rising real estate prices drive up the value of bank collateral and the level of bank returns.<sup>167</sup> Increased bank leverage not only makes banks more fragile, it can also increase the effective supply of money, fuel asset price bubbles in real estate (and other financial markets), and mask miscalculation of risk by market participants and regulators.<sup>168</sup>

This Article focuses on bank investments in real estate and the cyclical nature of real estate and banking. A related and robust literature, primarily in behavioral finance, has produced evidence of herd behavior in stock markets.<sup>169</sup> If bank investments in

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<sup>164</sup> Tobias Adrian & Hyun Song Shin, *The Changing Nature of Financial Intermediation and the Financial Crisis of 2007–2009*, 2 ANN. REV. ECON. 603, 606–07 (2010).

<sup>165</sup> Nobuhiro Kiyotaki & John Moore, *Credit Cycles*, 105 J. POL. ECON. 211 (1997).

<sup>166</sup> *Id.* at 212.

<sup>167</sup> See *supra* note 159 and accompanying text (noting how leverage lending and collateral are interrelated).

<sup>168</sup> GERDING, *supra* note 87, at 383–85.

<sup>169</sup> Robert Shiller provided an early empirical and theoretical attack on the Efficient Market Hypothesis and the contention that stock prices follow a “random walk.” His work argued that stock prices could be influenced by fads and social dynamics, which could result in persistent mispricings or “bubbles.” See ROBERT J. SHILLER, *IRRATIONAL EXUBERANCE* 195–213 (3d ed. 2015) (critiquing the efficient market theory). See generally Robert J. Shiller, *Stock Prices and Social Dynamics*, 2 BROOKINGS PAPERS ON ECON. ACTIVITY 457 (proffering a theory that social dynamics have significant influence on financial behavior).

mortgage-backed securities link real estate, bank lending, and capital markets together, they also provide a means to link cycles in all three of those markets. The danger, then, is that two or more cycles start to spin together, like hurricanes joining in warm water, to form a perfect storm. What potentially made this last U.S. real estate crisis so much worse than the savings and loan crisis of the 1980s was that fact that banks attached to financial conglomerates were involved. The sprawling capital markets activities of these institutions created yet another coupling rod, this time joining real estate and banking crises with a broader capital markets crisis.<sup>170</sup>

## VI. CONCLUSION: POLICY APPROACHES AND POLITICS

Real estate investments by banks thus pose significant systemic risk. Regulatory changes that enabled and encouraged bank investments in mortgage-backed securities provided a new transmission link between banking and real estate crises. This Conclusion sketches out three potential policy approaches ranging from blunt, sharply curtailed bank investments in real estate related securities, to surgical, developing, counter-cyclical regulations that curb bank risk exposures to real estate markets when they begin to overheat. This Article ends by outlining the thorny political dynamics that any of these approaches must confront. The aim of this brief section is not to flesh out any single policy approach or to do justice to the rich literature on reforming

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Following and complementing Shiller, behavioral finance scholars developed both theoretical models and empirical support for how “noise traders” or “investor sentiment” can drive stock prices to patterns. See Erik F. Gerding, *Laws Against Bubbles: An Experimental-Asset-Market Approach to Analyzing Financial Regulation*, 2007 WIS. L. REV. 977, 994–1001 (summarizing behavioral finance literature on noise trading and bubbles); see also Steven J. Cochran & Robert H. Defina, *Duration Dependence in the U.S. Stock Market Cycle: A Parametric Approach*, 5 APPLIED FIN. ECON. 309, 315–16 (1995) (analyzing predictability in U.S. stock markets from 1885 to 1992).

<sup>170</sup> See generally Arthur E. Wilmarth, Jr., *The Dark Side of Universal Banking: Financial Conglomerates and the Origins of the Subprime Financial Crisis*, 41 CONN. L. REV. 963 (2009) (analyzing ways in which capital markets, mortgage lending, and other activities, combined under the roof of financial conglomerates, created conditions for subprime crisis).

housing finance but rather to provide a rough map of the spectrum of policy approaches and their tradeoffs.

#### A. CURBING BANK INVESTMENTS IN REAL ESTATE AND REAL ESTATE SECURITIES MARKETS

The most radical and blunt approach to decoupling real estate cycles from bank cycles and real estate crises from bank crises would be to sharply limit banks' abilities to purchase or sponsor mortgage-backed securities investments. This might be done through sharp quantitative limitations on individual bank portfolios or wholesale investment activity restrictions.

This approach faces severe limitations and has significant downsides. To begin, sharply limiting bank investments in mortgage-backed securities would remove liquidity from primary and secondary mortgage markets, which could raise the cost of mortgage borrowing.<sup>171</sup> Even if these regulations would be justified in terms of the benefits of reducing bank risk, their political sustainability would be highly questionable.<sup>172</sup>

Furthermore, limiting bank investments in mortgage-backed securities could sharply limit the ability of banks to diversify their portfolios. Arguments for diversification, however, must be taken with several grains of salt. Witness the failure, or virtual failure, of large financial conglomerates, such as Citigroup, in the global financial crisis. The ability of financial institutions to invest in different markets does not ensure that they will pursue an appropriately balanced portfolio.<sup>173</sup> Policymakers will find it hard to reconcile the need for bank diversification with efforts to dampen transmission lines for contagion between financial

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<sup>171</sup> See James T. Fergus & John L. Goodman, Jr., *The 1989-92 Credit Crunch for Real Estate: A Retrospective*, 22 J. AM. REAL ESTATE & URB. ECON. ASS'N 5, 26 (noting the liquidity benefits of mortgage-backed securities markets).

<sup>172</sup> Banks, and related stakeholders, would be unlikely to entirely abandon the liquidity benefits offered by secondary mortgage-backed securities markets. See *id.* (explaining how mortgage-backed securities took liquidity and capital pressure off of banks).

<sup>173</sup> See Arthur E. Wilmarth, Jr., *Citigroup: A Case Study In Managerial and Regulatory Failures*, 47 IND. L. REV. 69, 70 (2014) (noting that Citigroup's managers were overly optimistic about Citigroups ability to "withstand the storms").

markets. Diversification and contagion are Janus-faced aspects of banking and banking regulation.

Diversification can also be seen from the opposite shore: even if banks leave mortgage securitization altogether, some category of financial institution would still have to invest in and sponsor secondary mortgage transactions. If financial regulations proscribe these institutions from engaging in depository banking or other bank activities, then these institutions likely will have excessive exposure to the real estate sector.<sup>174</sup>

Limiting their purchases of mortgage-backed securities will simply channel more of banks' capital to other asset classes, which will be subject to risks and market flaws of their own. These other assets may pose greater risks than mortgage-backed securities. This raises not only the "which is the greatest evil" question, but, more importantly, whether bank investments in any particular asset class could be more effectively regulated short of a blunt ban or quantitative restrictions.

#### B. REGULATING THE TYPES OF MORTGAGES IN WHICH BANKS CAN INVEST

A more nuanced approach would be to regulate the credit quality of the mortgage loans that banks can make or that serve as inputs to the mortgage-backed securities banks are allowed to purchase. This is largely the approach that U.S. financial reform has taken post-crisis. It animates reforms and reform proposals ranging from risk-retention ("skin in the game") rules,<sup>175</sup> the Qualified Mortgage (QM) regulations (that impose an ability to

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<sup>174</sup> Freddie Mac and Fannie Mae provide illustrations of what happens to financial institutions that are limited to real estate-related investments; each residential real estate downturn offers new threats to their solvency. W. SCOTT FRAME ET AL., FED. RESERVE BANK OF N.Y., STAFF REPORT NO. 719, *THE RESCUE OF FANNIE MAE AND FREDDIE MAC 1* (2015), available at [https://www.newyorkfed.org/medialibrary/media/research/Staff\\_reports/sr719.pdf](https://www.newyorkfed.org/medialibrary/media/research/Staff_reports/sr719.pdf) ("Fannie Mae and Freddie Mac were destined to fail owing to their singular exposure to residential real estate . . .").

<sup>175</sup> See Credit Risk Retention, 79 Fed. Reg. 77,602, 77,617, 77,620, 77,655 n.173 (Dec. 24, 2014) (to be codified at scattered parts of 12, 17, and 24 C.F.R.) (referencing the usefulness of ensuring sponsors have "skin in the game" to regulate risk in mortgage investments).

repay rule and legal incentives for safer mortgage products),<sup>176</sup> and restrictions on mortgage loan-to-value or debt-to-income rules. Each of these rules has faced sharp criticism.<sup>177</sup>

Risk-retention rules require mortgage originators to retain a portion of the risk of mortgages sold into a securitization.<sup>178</sup> These rules aim to fix the dulled incentives that originators supposedly have to check the creditworthiness of borrowers when their loans will be offloaded.<sup>179</sup> These skin in the game rules have several significant drawbacks. First, they run counter to one of the economic benefits of banks that make mortgage loans: the capacity to take the credit, liquidity, and interest rate risk of those loans off their balance sheets. Recall that securitization initially promised to help financial institutions unload risk and solve asset-liability mismatches.<sup>180</sup> Second, skin in the game rules could constrain banks' ability to redeploy cash for new loans because they retain more risk, which means they need more liquidity to cover that risk. This could cause concern that these rules will negatively impact mortgage markets and borrowing costs for homeowners.

Mortgages that meet new QM standards are exempt from these risk-retention rules.<sup>181</sup> The QM standards presume that lenders who make safer loans—which are known as “qualified mortgages”—comply with the ability to repay rule. The final October 2014 federal regulations limit these qualified mortgages to ones with the following criteria:

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<sup>176</sup> See 15 U.S.C. § 1369c(b)(2)(A) (2012) (defining “qualified mortgage”); Credit Risk Retention, 79 Fed. Reg. at 77,686–87 (explaining the agencies' decision to align the definition of QRM with that of QMs as defined in 15 U.S.C. § 1369c). See generally U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-15-185, MORTGAGE REFORMS: ACTIONS NEEDED TO HELP ASSESS EFFECTS OF NEW REGULATIONS (2015), <http://www.gao.gov/products/GAO-15-185> (discussing the steps necessary to implement the regulations regarding QMs and QRMS).

<sup>177</sup> See Credit Risk Retention, 79 Fed. Reg. at 77,681–82 (explaining the agencies' rationale for proposing loan-to-value requirements, which included criticism by commenters).

<sup>178</sup> See *id.* at 77,655 (explaining how risk retention creates incentives to purchase quality assets for securitization).

<sup>179</sup> *Id.*

<sup>180</sup> See *supra* notes 34–37 and accompanying text (explaining how securitizations alleviate banks' asset-liability mismatch problems).

<sup>181</sup> Credit Risk Retention, 79 Fed. Reg. at 77,686–87 (noting the exemptions required under section 15G of the Securities Exchange Act for QRMs, which the agencies define along the same criteria as QMs, thus effectively exempting both QMs and QRMs).



- (1) regular periodic payments of substantially equal amount;
- (2) no negative amortization, interest-only or balloon payment features;
- (3) a term of no more than 30 years;
- (4) limitations on “points” and fees;
- (5) reasonable efforts by the lender to consider, document, and verify the borrower’s ability to repay the loan; and
- (6) a cap on the debt-to-income ratio for the borrower.<sup>182</sup>

Risk retention rules faced criticism from two sides. Some commentators denounced the rules as doing too little to ensure the credit quality of mortgages.<sup>183</sup> Others criticized the rules for constraining access to mortgage credit, while arguing that less restrictive alternatives would still be safe for financial markets.<sup>184</sup>

This latter criticism demonstrates that efforts to restrict the types of bank investments in mortgages and mortgage-related securities will engender a heated political debate over access to credit. Whether they use rules or standards, policymakers may face constant pressure from banks and other financial intermediaries to relax these rules. Their technical nature and the lack of an organized interest group supporting their strenuous application makes these rules politically fragile.

### C. COUNTERCYCLICAL RULES

To address the risk of exposing banks to real estate cycles—and to mitigate the danger of bank and real estate cycles feeding on

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<sup>182</sup> *Id.* at 77,690.

<sup>183</sup> See Jeffery R. Favita, Note, *The Exception That Ate the Rule: Why QRM Should Not Equal QM*, 18 N.C. BANKING INST. 363, 390–91 (2014) (critiquing the risk retention rules’ use of the QM standard because QRM could be expanded with the definition of QM, exposing them to more risk).

<sup>184</sup> See 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, 1568 n.107 (2015) (relaying the pushback from commenters on proposed QRM definitions and exemptions, alleging they would restrict access to credit).

one another—the most promising policy option is implementing effective countercyclical regulations.<sup>185</sup> Countercyclical bank regulations work by tightening prudential requirements on banks during boom times and loosening them after busts. This offers a twofold benefit. First, these regulations ensure that banks enjoy a greater safety buffer as markets begin to overheat and the dangers of a crash increase.<sup>186</sup> Second, countercyclical regulations can operate to throttle-back bank lending or investments, which can reduce the flow of credit fueling market booms.<sup>187</sup>

The archetypal countercyclical regulation comes in loan loss reserves, such as those implemented by Spain.<sup>188</sup> Economists have documented how traditional loan loss reserves that are based on loan defaults in a prior period can exacerbate a market cycle.<sup>189</sup> When markets boom, fewer loans default, and regulations allow banks to lower their reserves.<sup>190</sup> Lower reserves allow banks to extend more credit, which further fuels the market.<sup>191</sup> This feedback loop, however, lurches into painful reverse should asset prices in a market plummet. Increased defaults can trigger higher reserves, which curtails credit, which in turn causes asset prices to plummet further and defaults to spike higher as homes are worth less. The solution then is to use models of market cycles to increase reserves during boom times and reduce them in busts.<sup>192</sup> Both Dodd-Frank and the Basel III proposals contain various provisions to extend the countercyclical approach to capital requirements.<sup>193</sup>

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<sup>185</sup> See GERDING, *supra* note 87, at 491–95 (providing commentary on financial countercyclicity); Patricia A. McCoy, *Countercyclical Regulation and its Challenges*, ARIZ. ST. L.J. (forthcoming), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2568261](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2568261) (identifying approaches to countercyclical financial regulation and their challenges).

<sup>186</sup> GERDING, *supra* note 87, at 491.

<sup>187</sup> *Id.* at 491–95.

<sup>188</sup> *Id.* at 491.

<sup>189</sup> *Id.*

<sup>190</sup> *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> See *id.* (suggesting a countercyclical response to crises, which can alleviate the effects of boom-bust cyclicity).

<sup>193</sup> *Id.*

Countercyclical bank regulation will require fairly good, but not perfect, models of economic cycles.<sup>194</sup> They will require some political will on the part of regulators not to undo countercyclical rules that would otherwise remove the banking punch when the real estate party gets started.<sup>195</sup> Countercyclical approaches may also be subject to regulatory arbitrage: when real estate markets begin to heat up or demand for mortgage credit intensifies, the incentives for banks to find workarounds for countercyclical regulations will dramatically increase.<sup>196</sup>

There is precedent for countercyclical regulations. Spain instituted countercyclical loan loss reserve regulations (called “dynamic provisioning”) for its banks several years ago.<sup>197</sup> At first blush, Spain’s experience in the current crisis might appear to weaken the argument for countercyclical regulations. The Spanish rules, however, applied only to certain banks (*bancos*) and not to *cajas* (called *caixas* in some regions), the savings banks at the heart of the real estate bubble and bust in Spain.<sup>198</sup> Economists have argued that although countercyclical regulations were flawed, they did spare Spain’s larger banks from the brunt of the financial crisis as experienced by financial institutions in other European countries.<sup>199</sup> Yet the Spanish example also warns of the dangers of applying countercyclical rules to only certain categories of financial institutions and the real possibility of regulatory arbitrage since capital flows around legal restrictions.

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<sup>194</sup> *Id.* Patricia McCoy also analyzes the need for high quality data to be inputted into these models. McCoy, *supra* note 185.

<sup>195</sup> GERDING, *supra* note 87, at 491. This will be compromised to the extent regulators are captured. McCoy, *supra* note 185.

<sup>196</sup> GERDING, *supra* note 87, at 491; McCoy, *supra* note 185.

<sup>197</sup> GERDING, *supra* note 87, at 492.

<sup>198</sup> *Id.* (noting that dynamic provisions did not apply to *cajas*); Douglas J. Elliott, An Overview of Macroprudential Policy and Countercyclical Capital Requirements 40 (Mar. 10, 2011) (unpublished manuscript), [http://www.brookings.edu/~media/Files/rc/papers/2011/03\\_11\\_capital\\_elliott/0311\\_capital\\_elliott.pdf](http://www.brookings.edu/~media/Files/rc/papers/2011/03_11_capital_elliott/0311_capital_elliott.pdf).

<sup>199</sup> Franklin Allen & Elena Carletti, *Financial Regulation Going Forward* 11 (Inst. for Monetary & Econ. Studies, Bank of Japan, Discussion Paper No. 2010-E-18, 2010), available at <http://www.imes.boj.or.jp/English/publication/conf/2010/Session5.pdf>; Julio Ramos-Tallada, *Financial Distress and Banking Regulation: What is Different about Spain?*, 6 J. INNOVATION ECON. & MGMT. 49, 69–71 (2010), available at <http://www.cairn.info/revue-journal-of-innovati-on-economics-2010-2-page-49.htm>.

This countercyclical idea could be extended to bank investments in mortgage-backed securities. Banks that purchase mortgage-backed securities should hold greater reserves or greater capital as prices in real estate markets boom. This will require better modeling of real estate cycles. As models imperfectly predict the future, regulators must exercise some level of judgment to take rules off autopilot. With greater judgment, however, comes greater susceptibility to political pressure.

As a parting note, in each of the policy solutions listed above, it is politics just as much as economics that poses the most daunting challenge. Politics presents the final cycle from which the real estate and bank lending cycles need to be decoupled. It is not only the financial industry but also vast swaths of the public that demand a robust supply of capital to residential real estate markets. However, when this political demand feeds into and feeds off of real estate and banking booms, the consequences can be disastrous. Legal engineering spurred by politics helped join together bank and real estate cycles. We must now rethink this engineering to make its costs and consequences more explicit and more controlled.<sup>200</sup>

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<sup>200</sup> See Adam J. Levitin & Susan M. Wachter, *Explaining the Housing Bubble*, 100 GEO. L.J. 1177 (2012) (tracing the cause of the bubble to the oversupply of mortgage finance, linking it to exploitation of information flaws in mortgage-backed securities); Adam J. Levitin & Susan M. Wachter, *The Public Option in Housing Finance*, 46 U.C. DAVIS L. REV. 1111 (2013) (arguing that government participation in housing finance can be stabilizing and productive, but policymakers did not see needed regulatory dimension in that participation).